

T-91-60



## Selection by Package

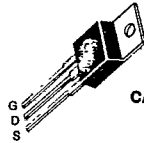
The product listed in Tables 1 through 22 have been compiled on an IBM or compatible personal computer disk for quick selection of product. This versatile disk may be obtained

by contacting a Motorola sale office in your area or by contacting a Motorola Literature Distribution Center listed on the back cover. Order the disk by requesting DK101/D.

Tables 1 through 22 are shown by package type. Within the tables the devices are arranged by breakdown voltage and on-resistance as the primary selection criteria. Device types shaded in Tables 1 through 8 are preferred devices recommended for new designs.

## TMOS Power MOSFETs

Plastic Packages — TO-220AB



TO-220AB  
CASE 221A-04

Table 1 — P-Channel

	V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) @ I <sub>D</sub> (Amps)		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> <sup>*</sup> (Watts) Max	Page
		Max					
	500	6	1	MTP2P50	2	75	3-407
	450			MTP2P45			3-407
	250	4	1.5	MTP3P25	3	75	3-427
		3	2.5	MTP5P25	5		3-447
		2	4	MTP8P25	8		3-462
NEW	200	0.5	6	IRF9640	11	125	3-147
NEW		0.8	3.5	IRF9630	6.5		75
	180	1	2.5	MTP5P20	5	75	3-442
				MTP5P18			
	100	0.4	4	MTP8P10	8	75	3-457
		0.3	6	MTP12P10	12		3-493
	80	0.4	4	MTP8P08	8	75	3-457
				MTP12P08	12		3-493
	60	0.6	3.5	MTP7P06	7	75	3-651
NEW		0.3	6	MTP2955	12		3-806
				MTP12P06	12		3-493
	50	0.2	10	MTP20P06	20	100	3-740
		0.6	3.5	MTP7P05	7	75	3-651
		0.3	6	MTP12P05	12	75	3-493

\* @ 25°C  
**Bold Type** indicates new product.  
 Shaded devices are preferred devices and are recommended for new designs.

Table 2 — N-Channel

V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) @ I <sub>D</sub> (Amps)		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
	Max					
1000	10	0.5	MTP1N100	1	75	3-392
	4	1.5	MTP3N100	3		3-606
950	10	0.5	MTP1N95	1	75	3-392
	4	1.5	MTP3N95	3		3-606
900	8	1	MTP2N90	2	75	3-402
	4	2	MTP4N90	4		3-606
850	8	1	MTP2N85	2	75	3-402
	4	2	MTP4N85	4		3-606
800	7	1.5	MTP3N80	3	75	3-417
	3	1.7	BUZ80A			3-79
750	7	1.5	MTP3N75			3-417
600	12	0.5	MTP1N60	1	75	3-566
	6	1	MTP2N60	2		3-586
	2.5	1.5	MTP3N60	3		3-412
	2	2.5	BUZ90	4		3-85
550	1.2	3	MTP6N60	6	125	3-641
	12	0.5	MTP1N55	1	75	3-566
	6	1	MTP2N55	2		3-586
	2.5	1.5	MTP3N55	3		3-412
500	1.2	3	MTP6N55	6	125	3-641
	8	0.5	MTP1N50	1	50	3-561
	4	1	MTP2N50	2	75	3-397
	3	1.5	IRF820	2.5	40	3-139
			MTP3N50	3		3-601
	2	1.5	IRF832	4	75	3-141
			IRF830	4.5		3-141
	1.5	1.5	MTP4N50	4	75	3-432
			IRF842	7		125
	0.85	4	IRF840	8	75	3-143
0.8	MTP8N50			3-672		
450	8	0.5	MTP1N45	1	50	3-561
	4	1	MTP2N45	2	75	3-397
			IRF823		40	3-139
	3	1	IRF821	2.5	75	3-139
			MTP3N45	3		3-601
	2	2.5	IRF833	4	75	3-141
			MTP4N45			3-432
	1.5	2			75	
	2.5	IRF831	4.5	3-141		

\* @ 25°C  
**Bold Type** indicates new product.  
 Shaded devices are preferred devices and are recommended for new designs.

Table 2 — N-Channel — continued

V(BR)DSS (Volts) Min	rDS(on) @ ID		Device	ID (cont) Amps	PD* (Watts) Max	Page
	(Ohms) Max	(Amps)				
450	1.1	4	IRF843	7	125	3-143
	0.85		IRF841	8		3-143
	0.8		MTP8N45			3-672
400	5	1	MTP2N40	2	50	3-581
	3.3	1.5	MTP3N40	3	75	3-596
	2.5		IRF722	2.5	40	3-133
	1.8		IRF720	3		3-133
	1.5	3	IRF732	4.5	75	3-135
	1		IRF730			3-135
			2.5	MTP5N40	5	
	0.55		IRF740	10	125	3-137
350			MTP10N40			3-704
	5	1	MTP2N35	2	50	3-581
	1.5	3	IRF733	4.5	75	3-135
	1		IRF731	5.5		3-135
		2.5	MTP5N35	5		3-437
	0.55	5	IRF741	10	125	3-137
			MTP10N35			3-704
250	2	1	MTP2N25	2	50	3-576
	0.45	5	MTP10N25	10	100	3-478
200	2.4	1.25	IRF612	2	20	3-123
	1.8	1	MTP2N20		50	3-571
	1.5	1.25	IRF610	2.5	20	3-123
	1		MTP5N20	5	75	3-631
	0.8		IRF620		40	3-125
	0.7	3.5	MTP7N20	7	75	3-646
	0.6	5	IRF632	8		3-127
	0.4		IRF630	9		3-127
		4	MTP8N20	8		3-452
		3.5	BUZ73	7	40	3-75
	0.35	6	MTP12N20	12	100	3-714
	0.22	10	IRF642	16	125	3-129
	0.18		IRF640	18		3-129
150	0.8	2.5	IRF621	4	40	3-125
	0.4	5	IRF631	9	75	3-127
	0.3		MTP10N15	10		3-699
	0.25	7.5	MTP15N15	15	100	3-729
	0.22	10	IRF643	16	125	3-129

\* @ 25°C  
Shaded devices are preferred devices and are recommended for new designs.

Table 2 — N-Channel — continued

V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> (Ohms) Max	I <sub>D</sub> (Amps)	Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> <sup>*</sup> (Watts) Max	Page
150	0.18	10	IRF641	18	125	3-129
120	0.3	5	MTP10N12L	10	75	3-473
	0.9	2.5	MTP5N12	5		3-626
	1.2	1.5	MTP3N12	3		..
100	0.8	3	MTP6N10	6	20	3-636
		2	IRF512	3.5		3-115
	0.6	4	IRF510	4	75	3-115
			MTP8N10	8		3-656
	0.4	4	MTP8N10E	7	40	3-661
			IRF522			7
	0.33	5	MTP10N10	10	75	3-682
	0.3	4	IRF520	8	40	3-117
	0.25	5	MTP10N10E	10	75	3-687
			8	IRF532		12
		0.18	6	IRF530		14
	0.15	10	MTP12N10	12	100	3-488
			MTP20N10	20		3-519
			MTP20N10E	20		3-734
	0.11	15	IRF542	24	125	3-121
			IRF540	27		3-121
	0.085	12.5	MTP25N10	25	40	3-757
			MTP25N10E			25
80	0.8	2	MTP4N08	4	50	3-616
	0.5	4	MTP8N08	8	75	3-656
			MTP10N08	10		3-682
	0.33	5	MTP10N08	10	75	3-682
	0.18	6	MTP12N08	12	40	3-488
0.15	10	MTP20N08	20	100	3-519	
60	0.8	2	IRF513	3.5	20	3-115
			IRF511	4		3-115
	0.6	2.5	MTP5N06	5	50	3-621
			MTP7N06	7		..
	0.4	4	IRF523	8	40	3-117
			IRF521			8
	0.3	5	MTP10N06	10	75	3-677
	0.28	8	IRF533	12		3-119
	0.2	5	MTP10N06E	10		3-467
			MTP12N06			10
	0.18	8	IRF531	14		3-119

\* @ 25°C

\*\* Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs.

Table 2 — N-Channel — continued

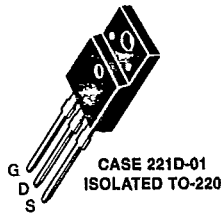
V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub>		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
	(Ohms) Max	(Amps)				
60	0.16	7.5	MTP15N06	15	75	3-719
			MTP15N06E			3-503
	0.15	6	MTP3055E	12	40	3-811
			IRF541			3-121
	0.085	15	MTP25N06	25	100	3-524
	0.08	12.5	MTP25N06E			3-751
	0.055	17.5	MTP35N06E	35	125	3-781
50	0.6	2.5	MTP5N05	5	50	3-621
	0.28	5	MTP10N05	10	75	3-677
	0.16	7.5	MTP15N05	15	40	3-719
			BUZ71A	12		3-70
			MTP12N05E			**
	0.12	6	IRFZ22	14	3-165	
			BUZ71	12	3-70	
			MTP15N05E	15	**	
	0.1	7.5	IRFZ20		3-165	
			MTP25N05	25	100	3-524
	0.08	12.5	MTP25N05E			3-745
	0.07		IRFZ32			3-167
	0.06	15	BUZ11A		75	3-67
			MTP30N05E	30	3-768	
			BUZ11		3-67	
	0.035	29	MTP45N05E	45	125	3-539
	0.028	25	IRFZ42	46		3-169
			MTP50N05E	50		3-550
			IRFZ40	51		3-169

\* @ 25°C  
 \*\*Contact Motorola sales office for data sheet.  
 Shaded devices are preferred devices and are recommended for new designs.

Table 3 — N- and P-Channel — Isolated TO-220

	V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub>		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
		(Ohms) Max	(Amps)				
NEW	60	0.3	6	MTA2955***	7	33	**
NEW				MTA3055E	10		**
NEW		0.1	7.5	MTA15N06E	15	40	**
NEW		0.028	25	MTA30N06E	30	50	**

\* @ 25°C  
 \*\*Contact Motorola sales office for data sheet.  
 \*\*\*Indicates P-Channel  
 Shaded devices are preferred devices and are recommended for new designs.





**TMOS Power MOSFETs**  
Plastic Packages — TO-218AC

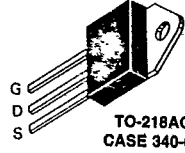


Table 4 — P-Channel

V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) Max	I <sub>D</sub> (Amps)	Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
200	0.7	4	MTH8P20	8	125	3-314
180			MTH8P18			3-314
100	0.15	10	MTH20P10	20		3-339
80			MTH20P08			3-339
60	0.14	12.5	MTH25P06	25		3-349
50			MTH25P05			3-349

\* @ 25°C  
Shaded devices are preferred devices and are recommended for new designs.

Table 5 — N-Channel

	V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) Max	I <sub>D</sub> (Amps)	Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
NEW	1000	2	3	MTH6N100	6	150	3-287
		3	2.5	MTH5N100	5		3-272
	950			MTH5N95		3-272	
NEW	900	1.8	4	MTH8N90	8	170	3-308
		3	3	MTH6N90	6	150	3-282
	850			MTH6N85		150	3-282
NEW	800	1.5	3.8	BUZ355		125	3-91
	600	1.2	3	MTH6N60		150	3-277
		0.5	4	MTH8N60	8		3-303
	550	1.2	3	MTH6N55	6		3-277
		0.5	4	MTH8N55	8		3-303
NEW	500	0.8	3.5	MTH7N50	7		3-293
		0.6	6	BUZ330	9.5	125	3-87
		0.4	7	MTH13N50	13	150	3-319
	450	0.8	3.5	MTH7N45	7		3-293
0.4		7	MTH13N45	13		3-319	
NEW	400	0.55	4	MTH8N40	8		3-298
		0.3	7.5	MTH15N40	15		3-329
	350	0.55	4	MTH8N35	8		3-298
0.3		7.5	MTH15N35	15		3-329	
NEW	250	0.14	15	MTH30N25	20	125	3-359

\* @ 25°C  
**Bold Type** indicates new product.  
Shaded devices are preferred devices and are recommended for new designs.



Table 5 — N-Channel — continued

V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) @ I <sub>D</sub> (Amps)		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
	Max					
200	0.16	7.5	MTH15N20	15	150	3-324
	0.08	15	MTH30N20	30		3-354
150	0.12	10	MTH20N15	20		3-334
	0.06	17.5	MTH35N15	35		3-376
100	0.07	12.5	MTH25N10	25		3-344
	0.04	20	MTH40N10	40		3-381
80	0.07	12.5	MTH25N08	25		3-344
	0.04	20	MTH40N08	40		3-381
60	0.055	17.5	MTH35N06	35		3-365
			MTH35N06E			3-370
	0.028	20	MTH40N06	40		3-381
50	0.055	17.5	MTH35N05	35		3-365
			MTH40N05		40	3-381
	0.028	20	MTH40N05E	50	125	3-386

NEW

\* @ 25°C  
**Bold Type** indicates new product.  
 Shaded devices are preferred devices and are recommended for new designs.

Table 6 — N- and P-Channel Isolated TO-218

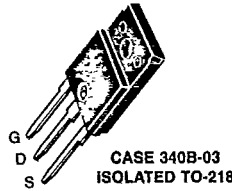
V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) @ I <sub>D</sub> (Amps)		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> * (Watts) Max	Page
	Max					
NEW 500	0.4	7	MTG9N50E	9	70	**
NEW 200	0.08	15	MTG20N20	20		**
NEW 100	0.15	10	MTG15P10***	15		**

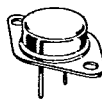
NEW

NEW

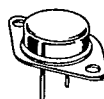
NEW

\* T<sub>C</sub> = 25°C  
 \*\*Contact Motorola sales office for data sheet.  
 \*\*\*Indicates P-Channel  
**Bold Type** indicates new product.





TO-204AA  
CASE 1-06



TO-204AE  
CASE 197A-02

## TMOS Power MOSFETS

Metal Packages — TO-204AA/AE

Table 7 — P-Channel

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	$I_D$ (Amps)	Device	$I_D$ (cont) Amps	$P_D^*$ (Watts) Max	Page
500	6	1	MTM2P50	2	75	3-407
450			MTM2P45			3-407
250	4	1.5	MTM3P25	3	75	3-427
	3	2.5	MTM5P25	5		3-447
	2	4	MTM8P25	8		3-462
200	1	2.5	MTM5P20	5	125	3-442
	0.7	4	MTM8P20	8		3-314
180	1	2.5	MTM5P18	5	75	3-442
	0.7	4	MTM8P18	8	125	3-314
100	0.4		MTM8P10			
	0.3	6	MTM12P10	12	125	3-493
	0.15	10	MTM20P10	20		3-339
80	0.4	4	MTM8P08	8	75	3-457
	0.3	6	MTM12P08	12	125	3-493
	0.15	10	MTM20P08	20		3-339
60	0.3	6	MTM12P06	12	75	3-493
	0.14	12.5	MTM25P06	25	125	3-349
50	0.3	6	MTM12P05	12	75	3-493
	0.2	10	MTM20P05	20	100	**
	0.14	12.5	MTM25P05	25	125	3-349

\* @ 25°C

\*\* Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs.

Table 8 — N-Channel

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	$I_D$ (Amps)	Device	$I_D$ (cont) Amps	$P_D^*$ (Watts) Max	Page
1000	10	0.5	MTM1N100	1	75	3-392
	4	1.5	MTM3N100	3	125	3-422
	3	2.5	MTM5N100	5	150	3-272
	1.2	5	MTM10N100E	10	300	**

NEW

\* @ 25°C

\*\* Contact Motorola sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs.



Table 8 — N-Channel — continued

V <sub>(BR)DSS</sub> (Volts) Min.	r <sub>DS(on)</sub> (Ohms) Max	I <sub>D</sub> (Amps)	Device	I <sub>D</sub> (cont.) Amps	P <sub>D</sub> <sup>*</sup> (Watts) Max	Page
950	10	0.5	MTM1N95	1	75	3-392
	4	1.5	MTM3N95	3	125	3-422
	3	2.5	MTM5N95	5	150	3-272
900	8	1	MTM2N90	2	75	3-402
	4	2	MTM4N90	4	125	3-422
	3	3	MTM6N90	6	150	3-282
850	8	1	MTM2N85	2	75	3-402
	4	2	MTM4N85	4	125	3-422
	3	3	MTM6N85	6	150	3-282
800	7	1.5	MTM3N80	3	75	3-417
	2	3	BUZ84	5.3	125	3-83
	1.5		BUZ84A	6		3-83
750	7	1.5	MTM3N75	3	75	3-417
600	2.8	3	2N6823			3-48
	2.5	1.5	MTM3N60			3-412
	1.6	6	2N6826	6	150	3-53
	1.2	3	MTM6N60			3-277
	0.5	4	MTM8N60	8		3-303
500	4	1	MTM2N50	2	75	3-397
	1.5	2	MTM4N50	4		3-432
		3	2N6762	4.5		3-18
	0.85	4	IRF440	8	125	3-111
	0.8	3.5	MTM7N50	7	150	3-293
NEW	0.5	7	IRF452	12		3-113
	0.4		IRF450	13		3-113
		7.5	2N6770	12		3-37
NEW	7.5		MTM15N50	15	250	3-514
	0.25	12	MTM24N50E	24	300	**
450	1.5	2	MTM4N45	4	75	3-432
	0.85	4	IRF441	8	125	3-111
	0.8	3.5	MTM7N45	7	150	3-293
	0.4	7	IRF451	13		3-113
		7.5	MTM15N45	15	250	3-514

\* @ 25°C

\*\*Contact Motorola's sales office for data sheet.

Shaded devices are preferred devices and are recommended for new designs.

Table 8 — N-Channel — continued

V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms) Max		Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> <sup>*</sup> (Watts) Max	Page
	1	3				
400	1	3	IRF330	5.5	75	3-105
		2.5	MTM5N40	5		3-437
		3.5	2N6760	5.5		3-14
	0.55	5	IRF340	10	125	3-107
		4	MTM8N40	8	150	3-298
	0.3	8	IRF350	15		3-109
		9	2N6768	14		3-32
		7.5	MTM15N40	15	250	3-509
	0.18	13	MTM26N40E	26	300	**
350	1.5	3	IRF333	4.5	75	3-105
		2N6759				3-14
	1	IRF331	5.5	3-105		
		2.5	MTM5N35	5	3-437	
	0.3	8	IRF351	15	150	3-109
		7.5	MTM15N35		250	3-509
250	0.45	5	MTM10N25	10	100	3-478
200	0.4	IRF230	9	75	3-99	
		2N6758			3-10	
		4			MTM8N20	8
	0.18	10	IRF240	18	125	3-101
		7.5	MTM15N20	15	150	3-324
	0.12	16	IRF252	25		3-103
		0.085	IRF250	30		3-103
	0.085	19	2N6766			3-27
		0.08	20	MTM40N20	40	250
	150	0.22	10	IRF243	16	125
0.18		16	IRF241	18	3-101	
0.12		10	MTM20N15	20	150	3-334
		16	IRF253	25		3-103
0.085		IRF251	30	3-103		
0.06		22.5	MTM45N15	45	250	3-545
100		0.18	8	IRF130	14	75
	6		MTM12N10	12	3-488	
	9		2N6756	14	3-6	
	0.15	10	MTM20N10	20	100	3-519
	0.11	15	IRF142	24	125	3-95
			IRF140	27		3-95
	0.085					
0.08	20	IRF152	33	150	3-97	

\* @ 25°C  
 \*\* Contact Motorola sales office for data sheet.  
 Shaded devices are preferred devices and are recommended for new designs.



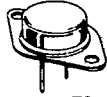
Table 8 — N-Channel — continued

V <sub>BR</sub> DSS (Volts) Min	r <sub>DS(on)</sub> (Ohms) Max	I <sub>D</sub> (Amps)	Device	I <sub>D</sub> (cont) Amps	P <sub>D</sub> (Watts) Max	Page
100	0.075	12.5	MTM25N10E	25	150	**
	0.07		MTM25N10			3-344
	0.055	20	IRF160	40		3-97
		24	2N6764	38		3-22
	0.04	27.5	MTM55N10	55	250	3-556
80			MTM55N08			3-556
60	0.15	7.7	MTM15N06E	17	75	3-503
	0.085	15	IRF141	27	125	3-95
	0.055	17.5	MTM35N06	35	150	3-365
			MTM35N06E			3-370
		20	IRF151	40		3-97
0.028	30	MTM60N06	60	250	3-556	
50	0.2	6	MTM12N05	12	75	3-483
	0.055	17.5	MTM35N05	35	125	3-365
	0.035	29	MTM45N05E	45		3-539
	0.028	25	MTM50N05E	50		3-550
		30	MTM60N05	60	250	3-556

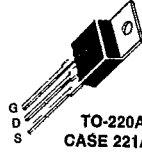
\* @ 25°C

\*\*Contact Motorola sales office for data sheet.

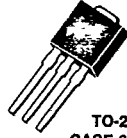
Shaded devices are preferred devices and are recommended for new designs.



TO-204AA  
(TO-3)  
CASE 1-06



TO-220AB  
CASE 221A-04



TO-251  
CASE 369-03



TO-252  
CASE 369A-04

# TMOS Power MOSFETs

## Logic Level Power MOSFETs

Logic level MOSFETs are fully enhanced with 5 volts applied to the gate.

Table 9 — N-Channel Logic Level Power MOSFETs (TO-204AA and TO-220AB)

	V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> (Ohms) Max	I <sub>D</sub> (Amps)	Device	I <sub>D(cont)</sub> (Amps)	P <sub>D</sub> @ T <sub>C</sub> = 25°C (Watts)	Package TO-	Page	
NEW	150	0.3	5	MTM10N15L	10	75	204AA	3-473	
				MTP10N15L			220AB	3-473	
		0.45	4	MTP8N15L	8			3-667	
	120	0.3	5	MTM10N12L	10		204AA	3-473	
				MTP10N12L			220AB	3-473	
	100	0.2	6	MTM12N10L	12		204AA	**	
				MTP12N10L			220AB	3-709	
		1.25	2	MTP3N10L	3			3-591	
NEW	80	0.135	7.5	MTP15N08L	15			3-724	
		0.2	6	MTM12N08L	12		204AA	**	
				MTP12N08L			220AB	3-709	
				MTP3N08L			3		
	NEW	60	0.06	20	MTP40N06EL	40	150		3-787
		0.08	12.5	MTM25N06L	25	100	204AA	3-529	
				MTP25N06L			220AB	3-529	
	NEW		0.15	7.5	MTM15N06L	15	75	204AA	3-498
					MTP15N06L			220AB	3-498
NEW	50	0.032	25	MTP305SEL	12	40		3-817	
NEW				MTD305SEL			TO-252	3-266	
NEW				MTD305SEL1			TO-251	3-266	
		0.6	2	MTP4N06L	4	25	220AB	3-611	
				MTP50N05EL			50	150	
		0.08	12.5	7.5	MTM25N05L	25	100	204AA	3-529
					MTP25N05L			220AB	3-529
	NEW		0.15	7.5	MTM15N05L	15	75	204AA	3-498
MTP15N05L					220AB			3-498	
		0.6	2	MTP4N05L	4	25		3-611	

\*\*Contact Motorola sales office for data sheet.  
**Bold Type** Indicates new product.  
 Shaded devices are preferred devices and are recommended for new designs.



**TMOS Power MOSFETs**

Hermetic, Isolated, Tab Mount Power MOSFETs

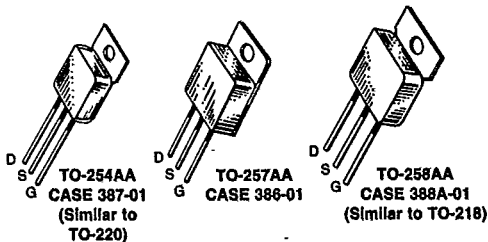


Table 10 — TO-254AA, TO-257AA, and TO-258AA ALL NEW DEVICES\*\*

	V <sub>(BR)DSS</sub> (Volts) Min	r <sub>DS(on)</sub> (Ohms) Max	@	I <sub>D</sub> (Amps)	Device	I <sub>D(cont)</sub> Amps	P <sub>D</sub> @ T <sub>C</sub> = 25°C Watts	Package TO-
NEW	1000	3		2.5	MHR5N100	5	125	258AA
NEW					MHM5N100			254AA
NEW	800	6		0.5	MHT1N100	1	50	257AA
NEW					MHT2N80			2
NEW	500	0.4		7	MHR15N50	15	125	258AA
NEW					MHM12N50			12
NEW		1.8		3.5	MHR7P50*	7	50	258AA
NEW					MHM7P50*			254AA
NEW		1.5		3	MHT4N50	4	50	257AA
NEW					MHT2P50*			2
NEW	200	0.1		16	MHR30N20	30	125	258AA
NEW					MHM25N20			25
NEW		0.4		6	MHT8N20	8	50	257AA
NEW					MHR8P20*			125
NEW		MHM8P20*	254AA					
NEW		MHT8P20*	257AA					
NEW	100	0.065		20	MHR35N10	35	125	258AA
NEW					MHM25N10			25
NEW		0.15		10	MHM20P10*	20	50	257AA
NEW	MHT10N10				10			
NEW	0.2		5	MHT12P10*				
NEW	0.3							
NEW	60	0.05		15	MHR35N06M	35	125	CASE 388-01

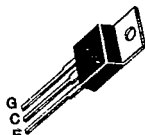
\*Indicates P-Channel  
 \*\*Contact Motorola sales office for data sheet.  
**Bold Type** indicates new product.  
 Note: All of these devices can be purchased with JTX or JTXV equivalent processing by adding HX or HXV suffix to device type.



## TMOS Insulated Gate Bipolar Transistors

### Gain Enhanced MOSFETs (IGBTs)

This relatively new series of power transistors combines the high input resistance of a MOSFET with the low internal on-resistance of a bipolar transistor to provide more efficient performance than either a MOSFET or bipolar device in low-frequency switching service. Recommended for motor drive circuits, home appliances, and other applications where high switching speed is not a requirement. All are N-Channel.

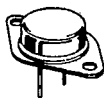


TO-220AB  
CASE 221A-04

Table 11 — TO-220AB

$V_{(BR)CES}$ (Volts) Min	$r_{CE(on)}$ (Ohms) Max	$I_C$ (Amps)	Device	$I_C$ (cont) Amps	$P_D^*$ (Watts) Max	Page
500	0.27	10	MGP20N50	20	100	3-184
	1.6	2.5	MGP5N50	5	50	3-180
450	0.27	10	MGP20N45	20	100	3-184
	1.6	2.5	MGP5N45	5	50	3-180

\* @ 25°C



TO-204AA  
(TO-3)  
CASE 1-06

Table 12 — TO-204AA

$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ (Ohms) Max	$I_D$ (Amps)	Device	$I_D$ (cont) Amps	$P_D^*$ (Watts) Max	Page
500	0.27	10	MGM20N50	20	100	3-184
	1.6	2.5	MGM5N50	5	50	3-180
450	0.27	10	MGM20N45	20	100	3-184
	1.6	2.5	MGM5N45	5	50	3-180

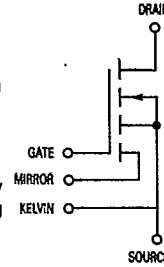
\* @ 25°C



**TMOS SENSEFETs**

SENSEFETs are conventional power MOSFETs with an option provided to sense the drain current by measuring a small proportion of the total drain current. These devices are ideal for current mode switching regulators and motor controls.

**CASE 314B  
(5 PIN TO-220)**



**Table 13 — Case 314B**

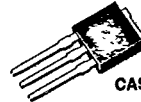
	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ $I_D$		Device	$I_D$ (cont) Amps	$P_D^*$ (Watts) Max	Page
		(Ohms) Max	(Amps)				
NEW	60	0.04	20	MTP40N06M	40	125	3-793
NEW	60	0.065	15	MTP30N08M	30		3-774
	100	0.25	5	MTP10N10M	10	75	3-693
		0.085	12.5	MTP25N10M	25	100	**
	250	1.5	4	MTP4N25M	4	75	**
		0.45	2	MTP10N25M	10	100	**

\* @ 25°C  
\*\*Contact Motorola sales office for data sheet.  
Bold Type indicates new product.

**DPAK**



**CASE 369A-04\*\*\*\*  
TO-252**



**CASE 369-03\*\*\*\*  
TO-251**

**Table 14 — Case 369A-04 Surface Mount  
Case 369-03 Insertion Mountable**

	$V_{(BR)DSS}$ (Volts) Min	$r_{DS(on)}$ @ $I_D$		Device	$I_D$ (cont) Amps	$P_D^*$ (Watts) Max	Page
		(Ohms) Max	(Amps)				
	500	4	1	MTD2N50	2	1.75**	3-219
	400	5	0.5	MTD1N40	1		3-208
	200	0.7	2	MTD4N20	4		3-224
NEW		1.5	1	MTD2N20	2		3-213
	150	0.25	3	MTD6N15	6		3-244
	100			MTD6N10		3-239	
	80			MTD6N08		3-239	
	60	0.6	2	MTD4P06†	4		3-228
		0.4	2.5	MTD5N06	5		3-234
		0.3	6	MTD2955†	12		3-255
NEW		0.15	4	MTD3055E	8		3-260
	50	0.8	2	MTD4P05†	4		3-229
		0.4	2.5	MTQ5N05	5		3-234
		0.1	5	MTD10N05E	10		3-249

\* @ 25°C  
\*\*Power rating when mounted on a board with the minimum pad size recommended.  
\*\*\*Add -1 Suffix to part number to order insertion mountable package.  
\*\*\*\*Available in tape and reel.  
† Indicates P-Channel  
Bold Type indicates new product.  
Shaded devices are preferred devices and are recommended for new designs.



**TMOS Power MOSFETs**  
Multiple Chip Products



CASE 806-02

Table 15 — Multiple Chip Products in the Isolated ICePAK\*

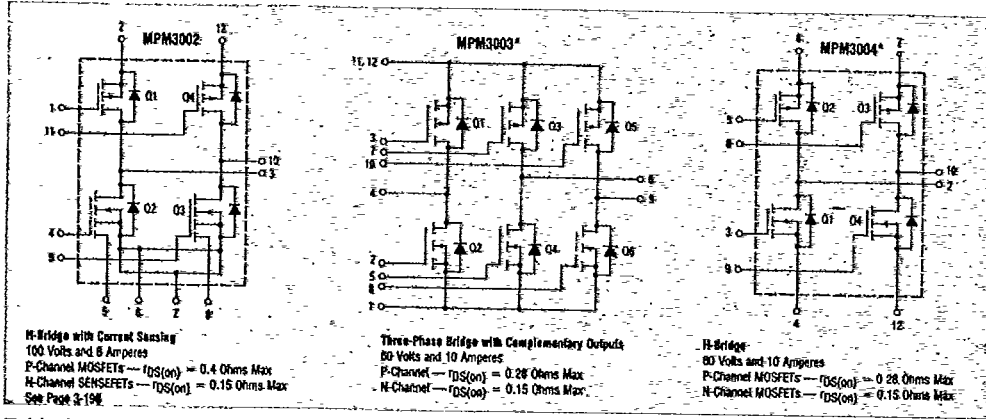


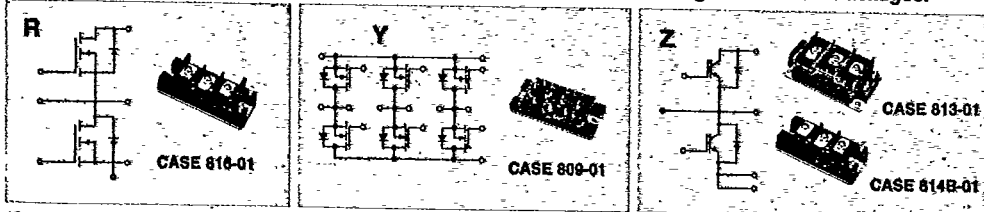
Table 16 — TMOS Power MOSFET Modules\*

Max $I_D$ (cont) Amps	Max $V_{DSS}$ Volts	Device Type	Module Type	Max $V_{DS(on)}$ Volts	Conditions			Max. Resistive Switching			$P_D$ Watts	Case No.	Circuit Config.	
					$I_D$ Amps	$V_{GS}$ Volts	$t_{on}$ $\mu s$	$t_{off}$ $\mu s$	$t_f$ $\mu s$	Conditions				
15	450	MT15FR45	Six-pack	6	15x6	10	0.6	2	0.5	15	10	125x6	809-01	Y
50	450	MT50BY45	Dual	7	50	10	0.8	1.3	0.2	50	10	400x2	816-01	R

Table 17 — IGBT Power Modules\*

Max $I_C$ (cont) Amps	Max $V_{CES}$ Volts	Device Type	Module Type	Max $V_{CE}$ Volts	Conditions			Max. Resistive Switching			$P_D$ Watts	Case No.	Circuit Config.	
					$I_C$ Amps	$V_{GE}$ Volts	$t_{on}$ $\mu s$	$t_s$ $\mu s$	$t_f$ $\mu s$	Conditions				
25	1000	MG25BZ100	Dual	5	25	15	1	2	1	25	15	200x2	813-01	Z
50	1000	MG50BZ100	Dual	5	50	15	1	1.5	1	50	15	300x2	813-01	Z
100	1000	MG100BZ100	Dual	5	100	15	1	1.5	1	100	15	400x2	814B-01	Z
25	500	MG25BZ50	Dual	5	25	15	1	1.5	1	25	15	125x2	813-01	Z
50	500	MG50BZ50	Dual	5	50	15	1	1.5	1	50	15	300x2	813-01	Z
75	500	MG75BZ50	Dual	5	75	15	1	1.5	1	75	15	350x2	813-01	Z
100	500	MG100BZ50	Dual	5	100	15	1	1.5	1	100	15	400x2	813-01	Z

Table 18 — TMOS Power MOSFET and IGBT Power Module Circuit Configurations and Packages.\*

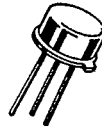


\*Contact Motorola sales office for data sheets.





Small-Signal MOSFETs



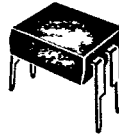
TO-205AF  
(TO-39)  
CASE 79-05

Table 19 — Switches and Choppers — TO-205AF

V <sub>(DSS)</sub> (Volts)	r <sub>DS(on)</sub> @ I <sub>D</sub>		Device	I <sub>D(Cont)</sub> (Amps)	P <sub>D</sub> @ T <sub>C</sub> = 25°C (Watts)	Page
	(Ohms)	(Amps)				
240	6	0.5	VN2406B	0.63	2.5	**
	10	0.5	VN2410B	0.63	2.5	**
200	0.8	2.25	2N6790-	3.5	20	**
	0.8	2	IRFF220	3.5	20	3-163
	1.5	1.5	2N6784	2.25	15	3-44
	6.4	0.25	MFE9200	0.4	1.8	3-177
170	6	0.5	VN1706B	0.63	2.5	**
	10	0.5	VN1710B	0.63	2.5	**
100	0.3	3	IRFF120	6	20	3-161
90	4	1	2N6661	0.9	6.25	3-2
60	3	1	2N6660	1.1	6.25	3-2
	5	0.5	MFE910	1	6.25	3-171
35	1.8	1	2N6659	1.4	6.25	**
30	1.2	1	VN0300B	1.25	6.25	**

\*\*Contact Motorola sales office for data sheet.

Table 20 — 4-Pin Dip — Case 370-01



CASE 370-01

P<sub>D</sub> @ T<sub>C</sub> = 25°C 1 Watt Max

V <sub>BR(DSS)</sub> (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub>		Device	I <sub>D(Cont)</sub> (Amp) Max	Page
	(Ohms) Max	(Amp)			
200	0.8	0.4	IRFD220	0.8	3-157
	1.5	0.3	IRFD210	0.6	3-155
150	2.4	0.3	IRFD213	0.45	3-155
100	0.3	0.6	IRFD120	1.3	3-153
	0.6	0.8	IRFD110	1	3-151
	0.6	-0.8	IRFD9120	-1	**
	1.2	-0.3	IRFD9110	-0.7	**
	2.4	0.25	IRFD120	0.5	3-149
60	0.4	0.6	IRFD123	1.1	3-153
	0.8	0.8	IRFD113	0.8	3-151
	0.8	-0.8	IRFD9123	-0.8	**

\*\*Contact Motorola sales office for data sheet.



TO-226AA  
(TO-92)  
CASE 29-04

Table 21 — Plastic — TO-226AA

V(BR)DSS	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms)		Device	I <sub>D</sub> (Cont) (Amp) Max	P <sub>D</sub> @ T <sub>C</sub> = 25°C Watts Max	Page
	Max	(Amp)				
240	6	0.5	VN2406L	0.158	0.4	**
	10	0.5	VN2410L	0.12	0.4	**
200	6.4	0.25	BS107A	0.25	0.6	**
	6.4	0.25	MPF9200	0.4	0.5	3-195
	14	0.2	BS107	0.25	0.6	**
170	6	0.5	VN1706L	0.158	0.4	**
	10	0.5	VN1710L	0.12	0.4	**
150	12	0.1	MPF4150†	0.25	0.625	3-193
60	5	0.5	2N7000	0.5	0.4	3-58
	5	0.2	BS170	0.195	0.4	3-62
	5	0.5	VN0610LL	0.12	0.4	3-823
	7.5	0.5	VN2222LL	0.099	0.4	3-825
30	1.2	1	VN0300L	0.4	0.4	**

\*\*Contact Motorola sales office for data sheet.

†Depletion Mode



TO-236AA  
(SOT-23)  
CASE 318-02

Table 22 — Surface Mount — Case 318-02

V(BR)DSS (Volts) Min	r <sub>DS(on)</sub> @ I <sub>D</sub> (Ohms)		Device	I <sub>D</sub> (Cont) (Amp) Max	P <sub>D</sub> @ T <sub>C</sub> = 25°C Watts Max	Package	Page
	Max	(Amp)					
100	6	0.1	BSS123	0.17	0.2	318-02	3-65
60	5	0.2	MMBF170	0.5	0.2	318-02	3-188
	7.5	0.5	2N7002	0.8	0.2	318-02	3-60

TO-220 Leadforms

<p><b>LEADFORM AJ</b></p>	<p><b>LEADFORM AK</b></p>	<p><b>LEADFORM S</b></p>
<p><b>LEADFORM W</b></p>	<p><b>LEADFORM WC</b></p>	<p><b>LEADFORM 2A</b></p>
<p><b>LEADFORM 3</b></p>	<p><b>LEADFORM 3A</b></p>	<p><b>LEADFORM 5F</b></p>
<p><b>LEADFORM 5FA</b></p>	<p><b>LEADFORM 5R</b></p>	<p><b>LEADFORM 5RA</b></p>
<p><b>LEADFORM 10R</b></p>	<p><b>LEADFORM 10RC</b></p>	<p><b>LEADFORM 15FA</b></p>
<p><b>LEADFORM 16</b></p>	<p><b>LEADFORM 16A</b></p>	<p><b>Ordering Information:</b>                      To purchase a leadformed device, contact your local sales office and advise which leadform is required. The sales office will contact the factory and obtain a part number to be used to order the leadformed device.</p>