SQ1470EH

PRODUCT SUMMARY	
V_{DS} (V)	30
$R_{DS(on)}$ (Ω) at V_{GS} = 4.5 V	0.065
$R_{DS(on)}$ (Ω) at V_{GS} = 2.5 V	0.095
I_D (A)	2.8
Configuration	Single

FEATURES

- **Halogen-free According to IEC 61249-2-21 Definition**
- TrenchFET® Power MOSFET
- AEC-Q101 Qualified[d]
- 100 % R_g and UIS Tested
- Compliant to RoHS Directive 2002/95/EC

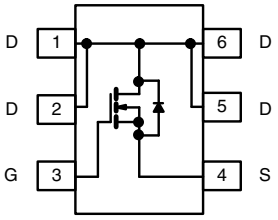
AUTOMOTIVE GRADE

Pb-free

RoHS COMPLIANT

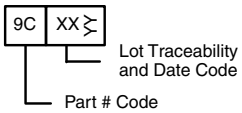
HALOGEN FREE

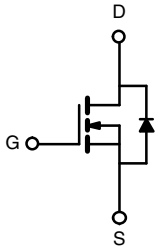
SOT-363
SC-70 (6-LEADS)



Top View

Marking Code





N-Channel MOSFET

ORDERING INFORMATION	
Package	SC-70
Lead (Pb)-free and Halogen-free	SQ1470EH-T1-GE3

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current[a]	T_C = 25 °C	I_D	2.8	A
	T_C = 125 °C		2.8	
Continuous Source Current (Diode Conduction)[a]		I_S	2.8	
Pulsed Drain Current[b]		I_{DM}	11	
Single Pulse Avalanche Current	L = 0.1 mH	I_{AS}	10	
Single Pulse Avalanche Energy		E_{AS}	5	mJ
Maximum Power Dissipation[b]	T_C = 25 °C	P_D	3.3	W
	T_C = 125 °C		1.1	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to + 175	°C

THERMAL RESISTANCE RATINGS

PARAMETER		SYMBOL	LIMIT	UNIT
Junction-to-Ambient	PCB Mount[c]	R_{thJA}	125	°C/W
Junction-to-Foot (Drain)		R_{thJF}	45	

Notes

a. Package limited.
b. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.
c. When mounted on 1" square PCB (FR-4 material).
d. Parametric verification ongoing.

SQ1470EH

SPECIFICATIONS (T_C = 25 °C, unless otherwise noted)							
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static							
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0 V, I_D = 250 µA		30	-	-	V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA		0.6	1.0	1.6	
Gate-Source Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 12 V		-	-	± 500	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V	V_{DS} = 30 V	-	-	1	µA
		V_{GS} = 0 V	V_{DS} = 30 V, T_J = 125 °C	-	-	50	
		V_{GS} = 0 V	V_{DS} = 30 V, T_J = 175 °C	-	-	150	
On-State Drain Current[a]	$I_{D(on)}$	V_{GS} = 4.5 V	V_{DS} ≥ 5 V	5	-	-	A
Drain-Source On-State Resistance[a]	$R_{DS(on)}$	V_{GS} = 4.5 V	I_D = 3.8 A	-	0.050	0.065	Ω
		V_{GS} = 4.5 V	I_D = 3.8 A, T_J = 125 °C	-	-	0.097	
		V_{GS} = 4.5 V	I_D = 3.8 A, T_J = 175 °C	-	-	0.115	
		V_{GS} = 2.5 V	I_D = 3.1 A	-	0.070	0.095	
Forward Transconductance[b]	g_{fs}	V_{DS} = 15 V, I_D = 2 A		-	8	-	S
Dynamic[b]							
Input Capacitance	C_{iss}	V_{GS} = 0 V	V_{DS} = 25 V, f = 1 MHz	-	488	610	pF
Output Capacitance	C_{oss}			-	60	75	
Reverse Transfer Capacitance	C_{rss}			-	36	45	
Total Gate Charge[c]	Q_g	V_{GS} = 4.5 V	V_{DS} = 15 V, I_D = 3.8 A	-	4.4	6.6	nC
Gate-Source Charge[c]	Q_{gs}			-	1	-	
Gate-Drain Charge[c]	Q_{gd}			-	1	-	
Gate Resistance	R_g	f = 1 MHz		3	6.35	9.7	Ω
Turn-On Delay Time[c]	$t_{d(on)}$	V_{DD} = 15 V, R_L = 3.9 Ω I_D ≅ 3.8 A, V_{GEN} = 4.5 V, R_g = 1 Ω		-	8	12	ns
Rise Time[c]	t_r			-	13	20	
Turn-Off Delay Time[c]	$t_{d(off)}$			-	14	21	
Fall Time[c]	t_f			-	8	12	
Source-Drain Diode Ratings and Characteristics[b]							
Pulsed Current[a]	I_{SM}			-	-	11	A
Forward Voltage	V_{SD}	I_F = 2.5 A, V_{GS} = 0 V		-	0.8	1.2	V

Notes

a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.
b. Guaranteed by design, not subject to production testing.
c. Independent of operating temperature.