



Dual N-Channel Enhancement Mode MOSFET

● Features

For a single mosfet

$V_{DS}(V) = 20V, I_D = 4.75A,$

$R_{DS(ON)} = 22m\Omega @ V_{GS} = 4.50V$

$R_{DS(ON)} = 24m\Omega @ V_{GS} = 3.85V$

$R_{DS(ON)} = 30m\Omega @ V_{GS} = 2.50V$

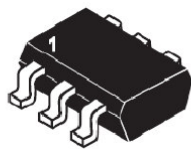
● General Description

Super high dense cell design for low $R_{DS(ON)}$.

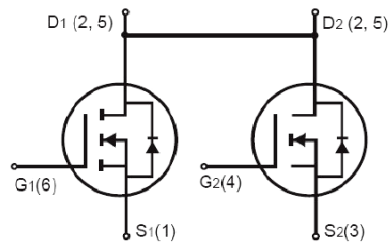
Rugged and reliable.

Surface Mount package.

● Pin Configuration



SOT23-6L



● Absolute Maximum Ratings @ $T_A = 25^\circ C$ unless otherwise specified

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	12	V
Drain Current-Continuous @ $T_J = 25^\circ C$ ^a	I_D	4.75	A
-Pulsed ^b	I_{DM}	25	A
Drain-Source Diode Forward Current ^a	I_S	2	A
Maximum Power Dissipation ^a	P_D	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Notes:

a. mounted on a 1in² FR-4 board with 2oz. Copper in a still air environment at 25°C, the current rating is based on the DC (<10s) test conditions, for each single die.

b. Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2%.



● **Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	--		1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	--		± 100	nA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	--		V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$		22	25	m Ω
		$V_{GS} = 3.85V, I_D = 5A$		24	27	
		$V_{GS} = 2.5V, I_D = 4A$		30	35	
Forward Transconductance	G_{FS}	$V_{DS} = 10V, I_D = 6A$		5		S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS} = 10V, V_{GS} = 0V$ $F = 1.0MHz$	--	560	--	pF
Output Capacitance	C_{OSS}		--	75		
Reverse Transfer Capacitance	C_{RSS}			70		
Total Gate Charge	Q_G	$V_{DS} = 10V, I_D = 6A, V_{GS} = 4.5V$		5		nC
Gate-Source Charge	Q_{GS}			0.9		
Gate-Drain	Q_{GD}			1.4		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$T_{D(ON)}$	$V_{DD} = 10V, I_D = 1A,$	--	18		nS
Turn-Off Delay Time	$T_{D(OFF)}$	$V_{GEN} = 4.5V, R_G = 6\Omega$		25	--	

Note: 2. Short duration test pulse used to minimize self-heating effect.



● Typical Performance Characteristics

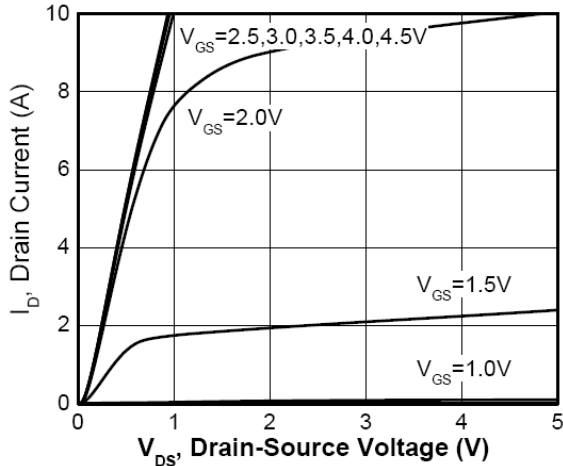


Figure 1. Output Characteristics

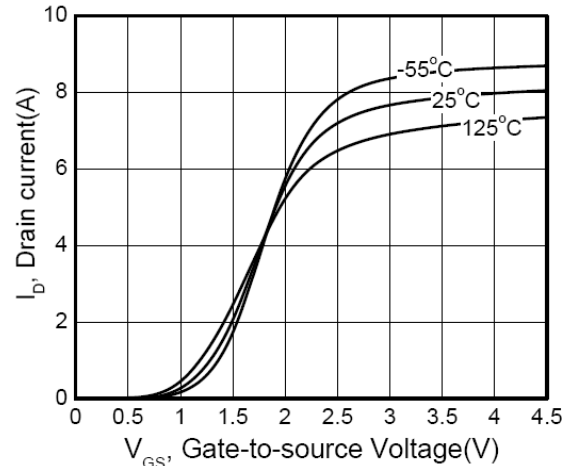


Figure 2. Transfer Characteristics

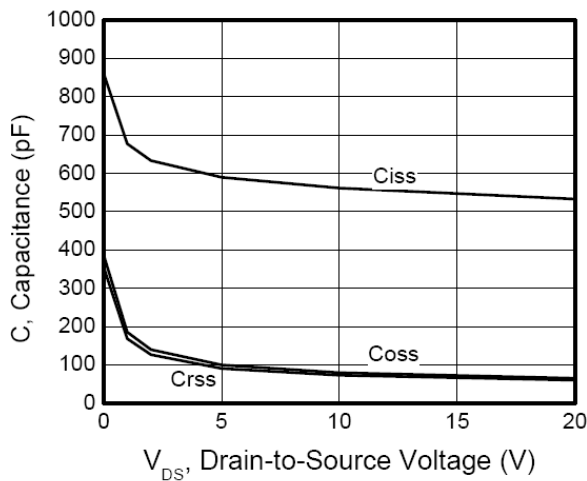


Figure 3. Capacitance

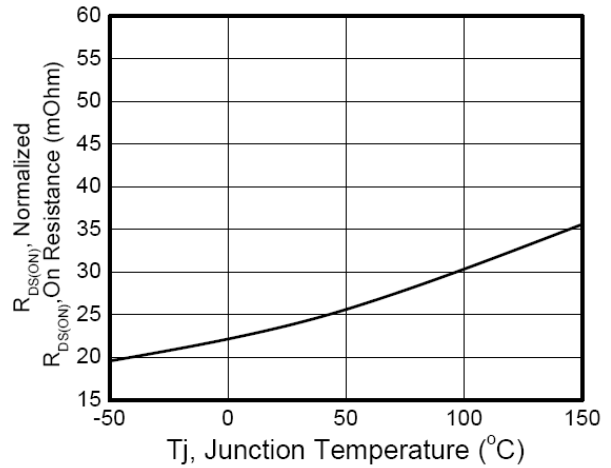


Figure 4. On Resistance Vs. Temperature

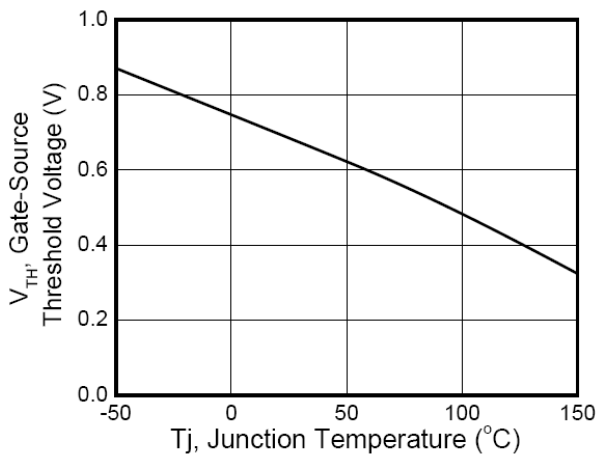


Figure 5. Gate Threshold Vs. Temperature

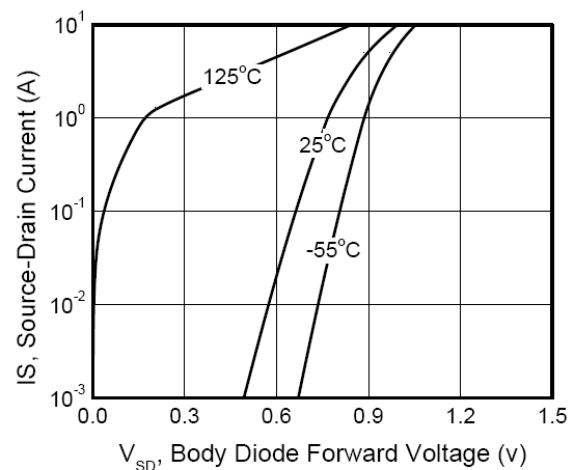
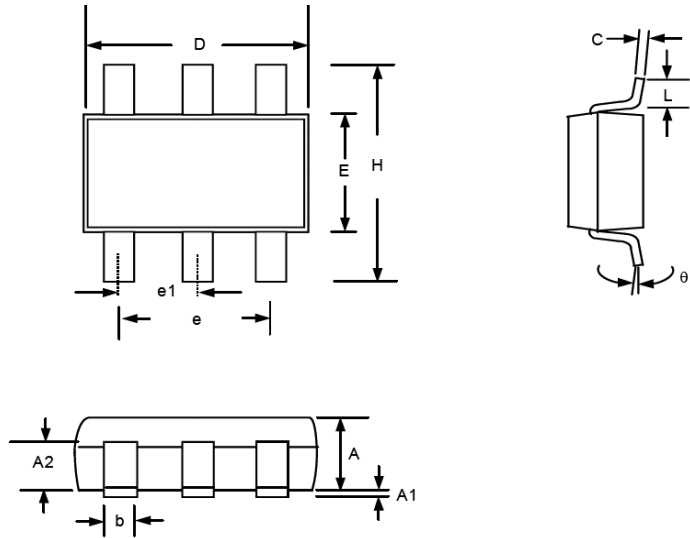


Figure 6. Body Diode Forward Voltage Vs. Source Current



● Package Information



Symbol	Dimension mm			Dimension in inch		
	Min	Nom	Max	Min	Nom	Max
A	1.00	1.10	1.30	0.039	0.043	0.051
A1	0.00		0.10	0.000		0.004
A2	0.70	0.80	0.90	0.028	0.031	0.035
b	0.35	0.40	0.50	0.014	0.016	0.020
C	0.10	0.15	0.25	0.004	0.006	0.010
D	2.70	2.90	3.10	0.106	0.114	0.122
E	1.40	1.60	1.80	0.055	0.063	0.071
e		1.90(TYP)			0.075(TYP)	
H	2.60	2.80	3.00	0.102	0.110	0.118
L	0.37			0.015		
θ_1	1°	5°	9°	1°	5°	9°