

Electrical Characteristics (T_c=25 unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250 A	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	A
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 A	1.0	1.6	2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A	-	12	16	m
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =30A	30	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, F=1.0MHz	-	1798	-	PF
Output Capacitance	C _{oss}		-	185	-	PF
Reverse Transfer Capacitance	C _{rss}		-	80	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _D =2A, R _L =1 V _{GS} =10V, R _{GEN} =3	-	12	-	nS
Turn-on Rise Time	t _r		-	5.2	-	nS
Turn-Off Delay Time	t _{d(off)}		-	38	-	nS
Turn-Off Fall Time	t _f		-	27	-	nS
Total Gate Charge	Q _g	V _{DS} =30V, I _D =30A, V _{GS} =10V	-	36	-	nC
Gate-Source Charge	Q _{gs}		-	9.9	-	nC
Gate-Drain Charge	Q _{gd}		-	6.6	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =30A	-	-	1.2	V
Diode Forward Current (Note 2)	I _S		-	-	50	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =30A di/dt = 100A/ s (Note3)	-	35		nS
Reverse Recovery Charge	Q _{rr}		-	47		nC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t₁₀ sec.
3. Pulse Test: Pulse Width 300 μs, Duty Cycle 2%.
4. Guaranteed by design, not subject to production
5. E_{AS} condition: T_J=25 °C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25

Typical Performance Characteristics

Figure 1: Output Characteristics

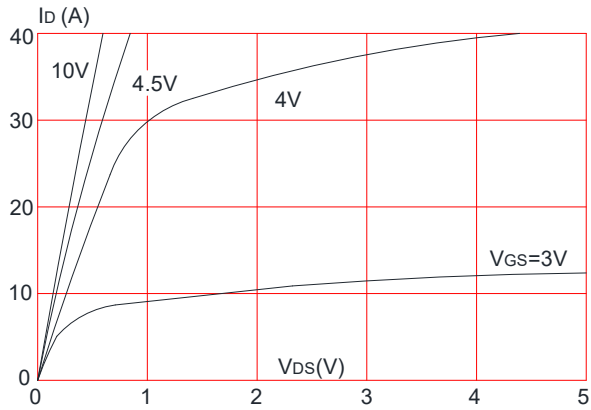


Figure 2: Typical Transfer Characteristics

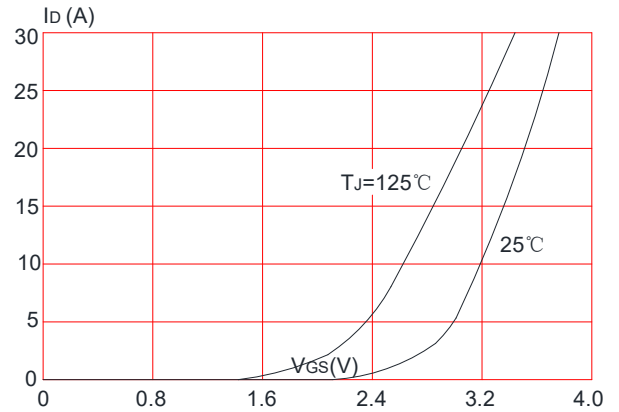


Figure 3: On-resistance vs. Drain Current

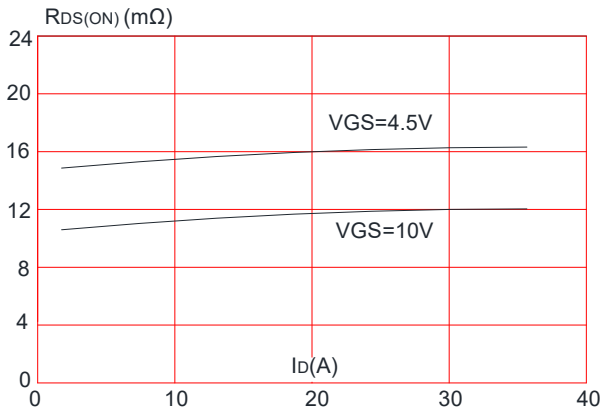


Figure 4: Body Diode Characteristics

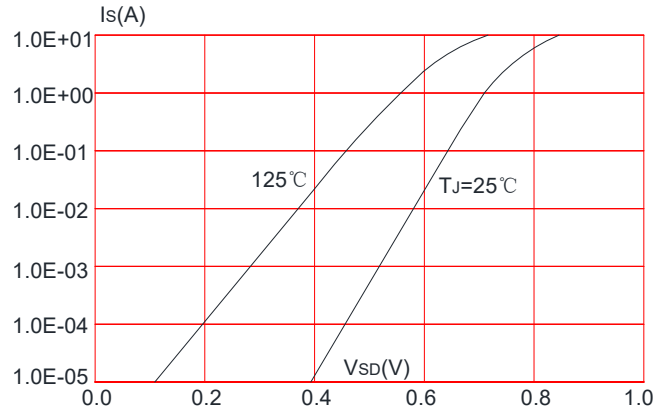


Figure 5: Gate Charge Characteristics

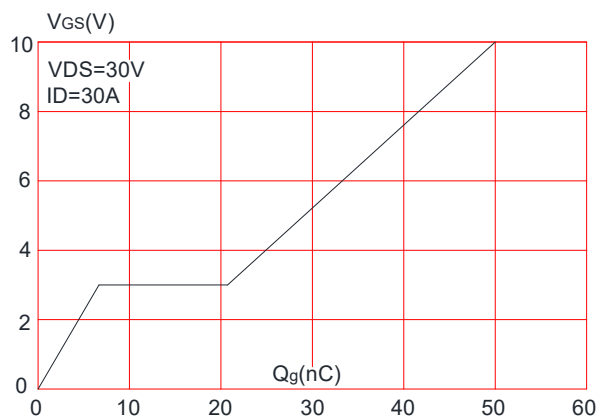


Figure 6: Capacitance Characteristics

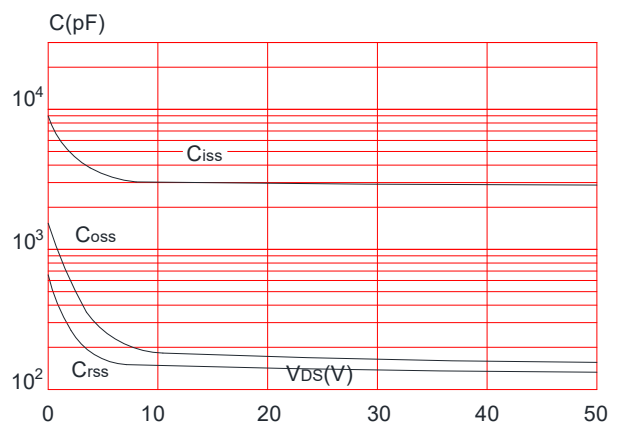


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

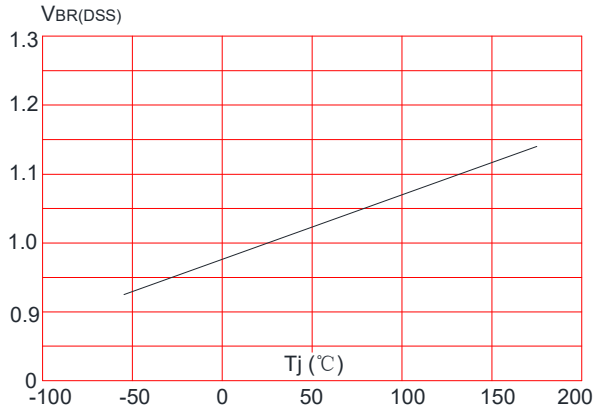


Figure 8: Normalized on Resistance vs. Junction Temperature

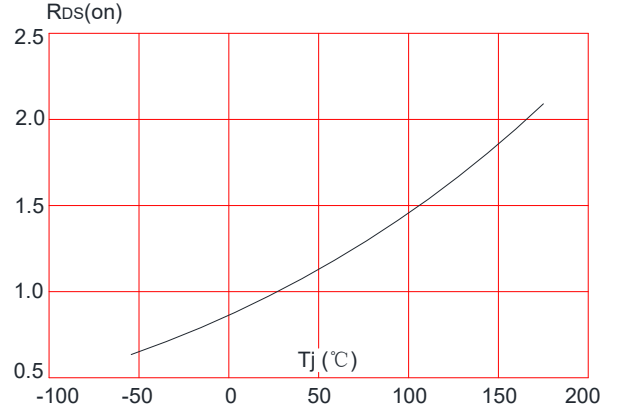


Figure 9: Maximum Safe Operating Area

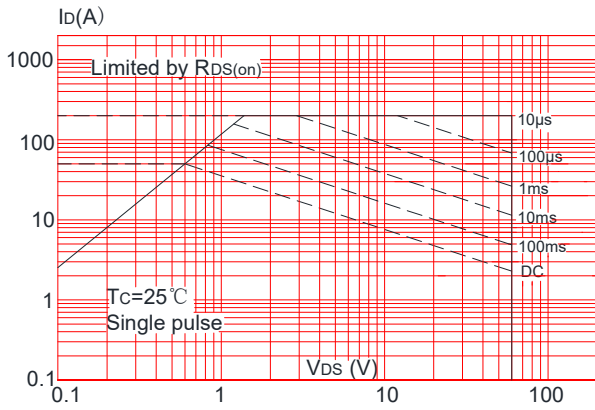


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

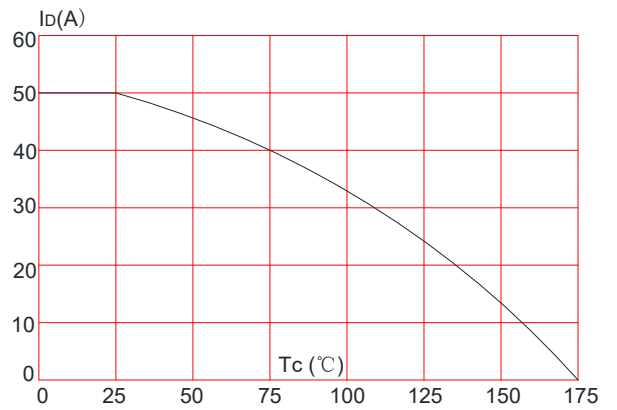
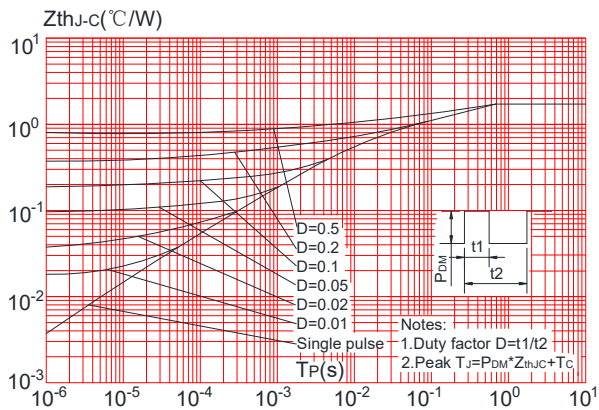


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Package Information:TO-251S-3L

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