

- Typ. $R_{DS(on)} = 32\text{ m}\Omega$ @ $V_{GS} = 18\text{ V}$
Typ. $R_{DS(on)} = 42\text{ m}\Omega$ @ $V_{GS} = 15\text{ V}$
- Ultra Low Gate Charge ($Q_{G(tot)} = 105\text{ nC}$)
- High Speed Switching with Low Capacitance ($C_{oss} = 162\text{ pF}$)
- 100% Avalanche Tested
- AEC Q101 Qualified and PPAP Capable
- This Device is Halide Free and RoHS Compliant with exemption 7a, Pb Free 2LI (on second level interconnection)
- Automotive On Board Charger
- Automotive DC-DC Converter for EV/HEV

($T_J = 25^\circ\text{C}$ unless otherwise noted)

Drain-to-Source Voltage		V_{DSS}	650	V
Gate-to-Source Voltage		V_{GS}	-8/+22	V
Recommended Operation Values of Gate-to-Source Voltage		$T_C < 175^\circ\text{C}$	V_{GSop}	-5/+18 V
Continuous Drain Current (Note 2)	Steady State	$T_C = 25^\circ\text{C}$	I_D	66 A
			P_D	291 W
Continuous Drain Current (Notes 1, 2)	Steady State	$T_C = 100^\circ\text{C}$	I_D	46 A
			P_D	145 W
Pulsed Drain Current (Note 3)	$T_C = 25^\circ\text{C}$		I_{DM}	191 A
Single Pulse Surge Drain Current Capability	$T_A = 25^\circ\text{C}$, $t_p = 10\text{ }\mu\text{s}$, $R_G = 4.7\text{ }\Omega$		I_{DSC}	315 A
Operating Junction and Storage Temperature Range			T_J, T_{stg}	-55 to +175 $^\circ\text{C}$
Source Current (Body Diode)			I_S	75 A
Single Pulse Drain-to-Source Avalanche Energy ($I_{L(pk)} = 12\text{ A}$, $L = 1\text{ mH}$) (Note 4)			E_{AS}	72 mJ
Maximum Lead Temperature for Soldering (1/8" from case for 5 s)			T_L	300 $^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. JA is constant value to follow guide table of LV/HV discrete final datasheet generation.
2. The entire vppit sheet

Junction-to-Case – Steady State (Note 2)	$R_{\theta JC}$	0.52	°C/W
Junction-to-Ambient – Steady State (Notes 1, 2)	$R_{\theta JA}$	40	

($T_J = 25^\circ\text{C}$ unless otherwise specified)

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Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	650	-	-	V	
Drain-to-Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	$I_D = 20\text{ mA}$, referenced to 25°C	-	0.15	-	V/°C	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0\text{ V}, V_{DS} = 650\text{ V}$	$T_J = 25^\circ\text{C}$	-	-	10	μA
			$T_J = 175^\circ\text{C}$	-	-	1	mA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = +22/-8\text{ V}, V_{DS} = 0\text{ V}$	-	-	250	nA	

(Note 3)

Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I$
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(T_J = 25°C unless otherwise specified) (continued)

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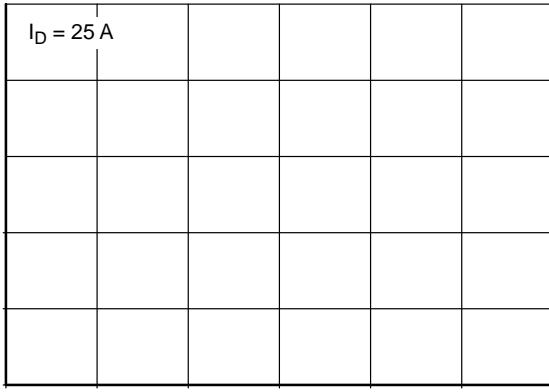
Reverse Recovery Time	t _{RR}	V _{GS} = -5/18 V, I _{SD} = 25 A, di _S /dt = 1000 A/μs	-	19	-	ns
Reverse Recovery Charge	Q _{RR}		-	99	-	nC
Reverse Recovery Energy	E _{REC}		-	3.5	-	μJ
Peak Reverse Recovery Current	I _{RRM}		-	10	-	A
Charge Time	T _a		-	11	-	ns
Discharge Time	T _b		-	8.4	-	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



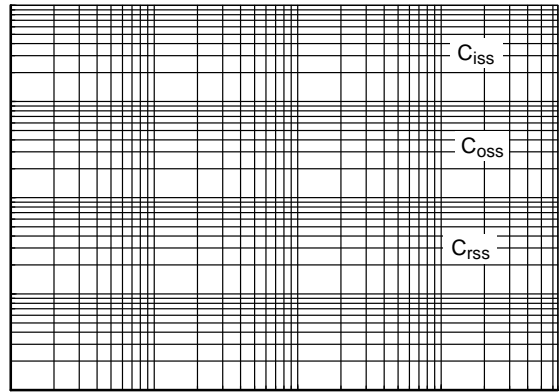
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V_{GS} , GATE-TO-SOURCE VOLTAGE (V)



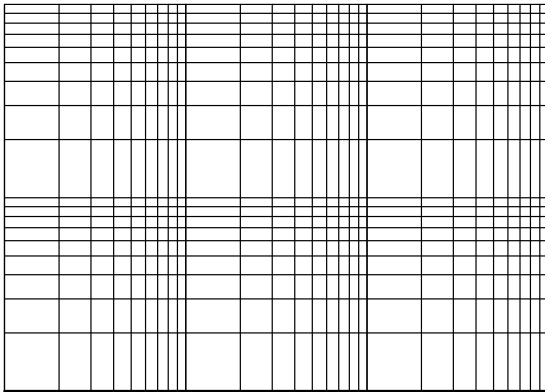
Q_g , GATE CHARGE (nC)

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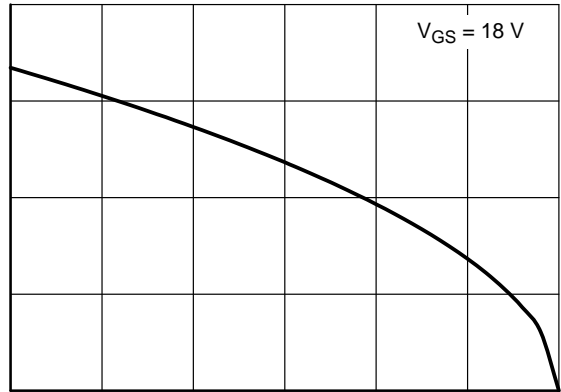
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I_{AS} , AVALANCHE CURRENT (A)



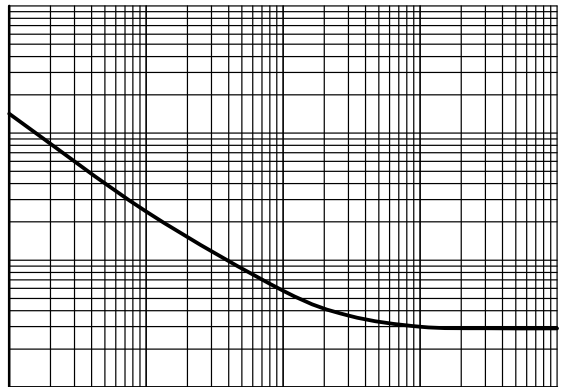
t_{AV} , TIME IN AVALANCHE (ms)

I_D , DRAIN CURRENT (A)



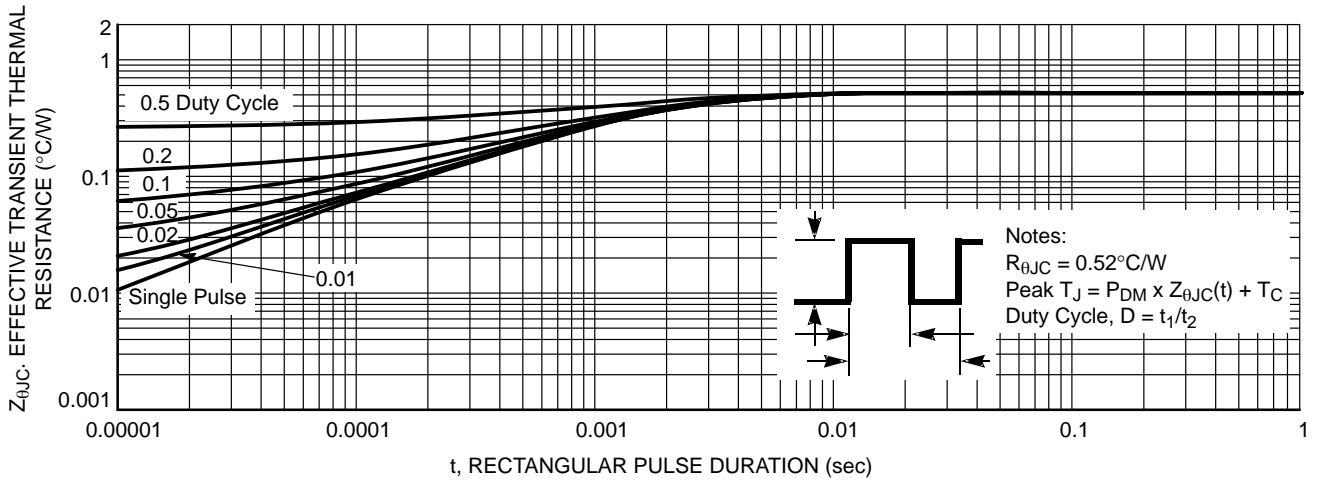
T_C , CASE TEMPERATURE ($^{\circ}C$)

P (PK)



t , PULSE WIDTH (sec)

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