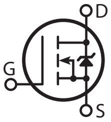
Static Characteristics T_J = 25°C unless otherwise specified

Symbol	Parameter	Test Conditions		Min	Typ	Max	Unit
$V_{BR(DSS)}$	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250µA		600			V
$\Delta V_{BR(DSS)}/\Delta T_J$	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I_D = 250µA			0.57		V/°C
$R_{DS(on)}$	Drain-Source On Resistance③	V_{GS} = 10V, I_D = 33A			0.075	0.09	Ω
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS} = V_{DS}, I_D = 2.5mA		3	4	5	V
$\Delta V_{GS(th)}/\Delta T_J$	Threshold Voltage Temperature Coefficient				-10		mV/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 600V	T_J = 25°C			100	µA
		V_{GS} = 0V	T_J = 125°C			500	
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±30V				±100	nA

Dynamic Characteristics T_J = 25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
g_{fs}	Forward Transconductance	V_{DS} = 50V, I_D = 33A		65		S
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 25V f = 1MHz		13190		pF
C_{rss}	Reverse Transfer Capacitance			135		
C_{oss}	Output Capacitance			1210		
$C_{o(cr)}$ ④	Effective Output Capacitance, Charge Related	V_{GS} = 0V, V_{DS} = 0V to 400V		645		
$C_{o(er)}$ ⑤	Effective Output Capacitance, Energy Related			335		
Q_g	Total Gate Charge	V_{GS} = 0 to 10V, I_D = 33A, V_{DS} = 300V		330		nC
Q_{gs}	Gate-Source Charge			70		
Q_{gd}	Gate-Drain Charge			140		
$t_{d(on)}$	Turn-On Delay Time	**Resistive Switching** V_{DD} = 400V, I_D = 33A R_G = 2.2Ω⑥, V_{GG} = 15V		75		ns
t_r	Current Rise Time			85		
$t_{d(off)}$	Turn-Off Delay Time			225		
t_f	Current Fall Time			70		

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_S	Continuous Source Current (Body Diode)	MOSFET symbol showing the integral reverse p-n junction diode (body diode) 			70	A
I_{SM}	Pulsed Source Current (Body Diode)①				245	
V_{SD}	Diode Forward Voltage	I_{SD} = 33A, T_J = 25°C, V_{GS} = 0V			1.0	V
t_{rr}	Reverse Recovery Time	I_{SD} = 33A③ di_{SD}/dt = 100A/µs, T_J = 25°C		765		ns
Q_{rr}	Reverse Recovery Charge			22		µC
dv/dt	Peak Recovery dv/dt	I_{SD} ≤ 33A, di/dt ≤1000A/µs, V_{DD} = 100V, T_J = 125°C			8	V/ns

① Repetitive Rating: Pulse width and case temperature limited by maximum junction temperature.

② Starting at T_J = 25°C, L = 3.39mH, R_G = 25Ω, I_{AS} = 33A.

③ Pulse test: Pulse Width < 380µs, duty cycle < 2%.

④ $C_{o(cr)}$ is defined as a fixed capacitance with the same stored charge as C_{OSS} with V_{DS} = 67% of $V_{(BR)DSS}$.

⑤ $C_{o(er)}$ is defined as a fixed capacitance with the same stored energy as C_{OSS} with V_{DS} = 67% of $V_{(BR)DSS}$. To calculate $C_{o(er)}$ for any value of V_{DS} less than $V_{(BR)DSS,}$ use this equation: $C_{o(er)}$ = -1.28E-7/V_{DS}^2 + 5.36E-8/V_{DS} + 2.00E-10.

⑥ R_G is external gate resistance, not including internal gate resistance or gate driver impedance. (MIC4452)

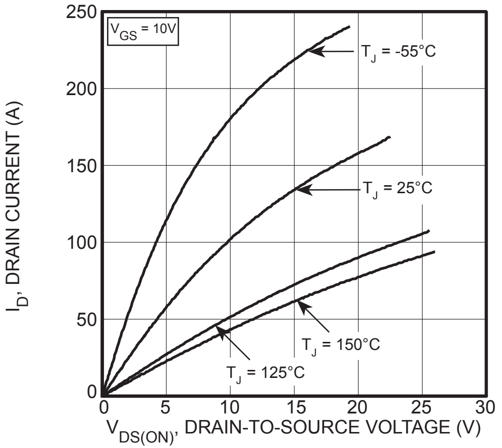


Figure 1, Output Characteristics

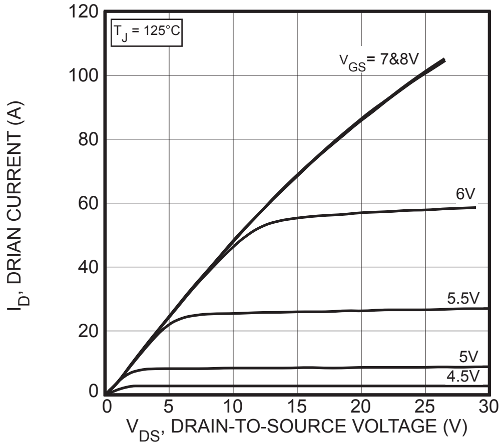


Figure 2, Output Characteristics

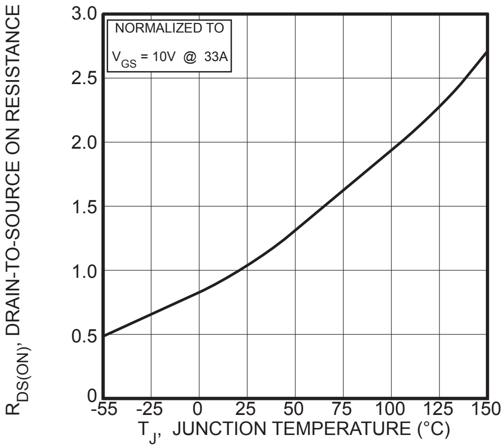


Figure 3, $R_{DS(ON)}$ vs Junction Temperature

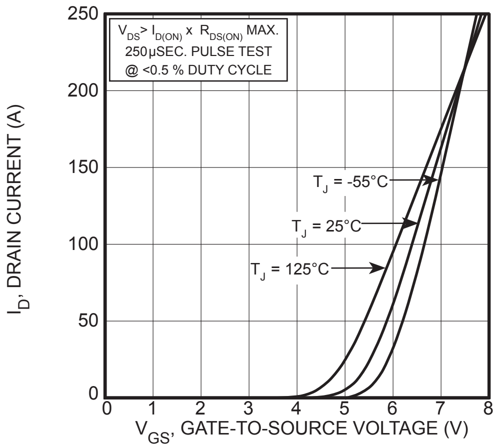


Figure 4, Transfer Characteristics

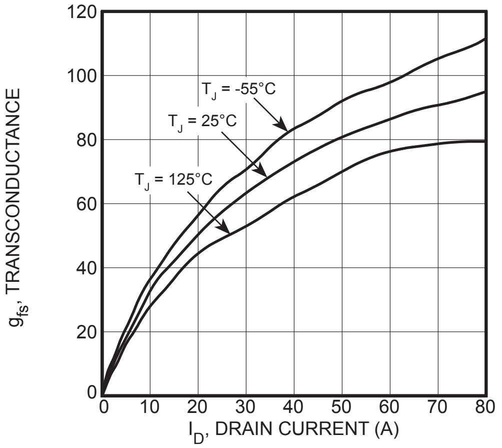


Figure 5, Gain vs Drain Current

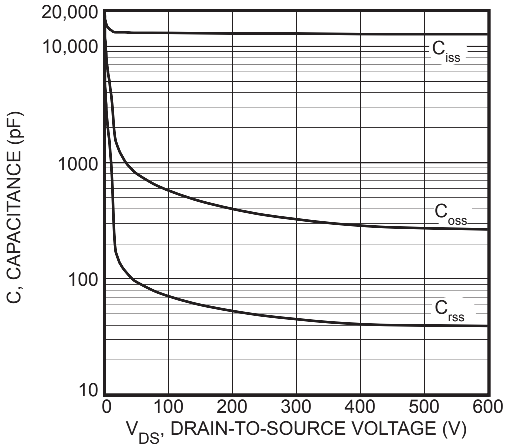


Figure 6, Capacitance vs Drain-to-Source Voltage

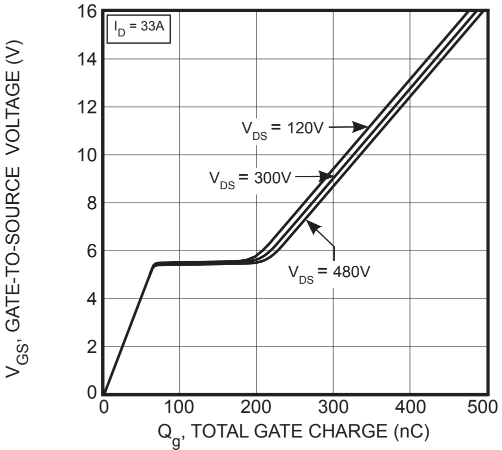


Figure 7, Gate Charge vs Gate-to-Source Voltage

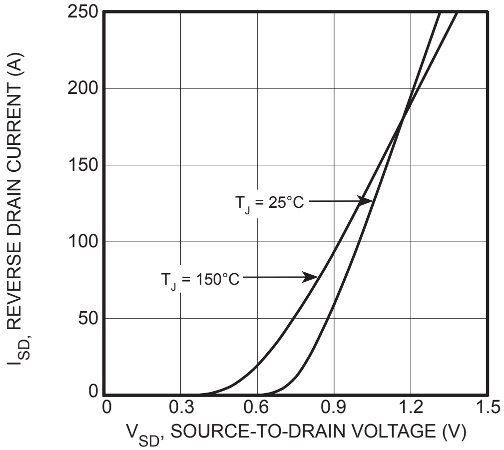


Figure 8, Reverse Drain Current vs Source-to-Drain Voltage

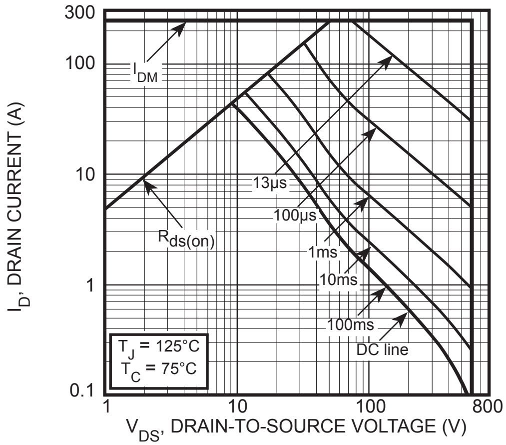


Figure 9, Forward Safe Operating Area

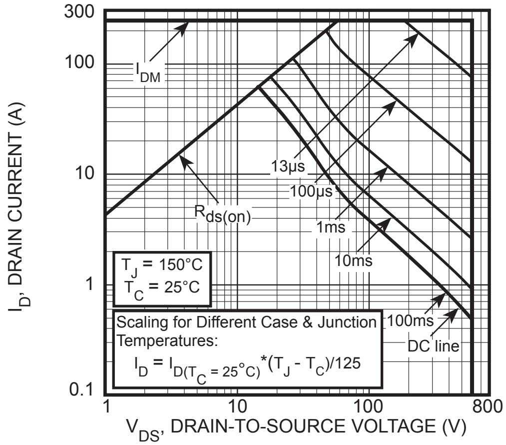


Figure 10, Maximum Forward Safe Operating Area

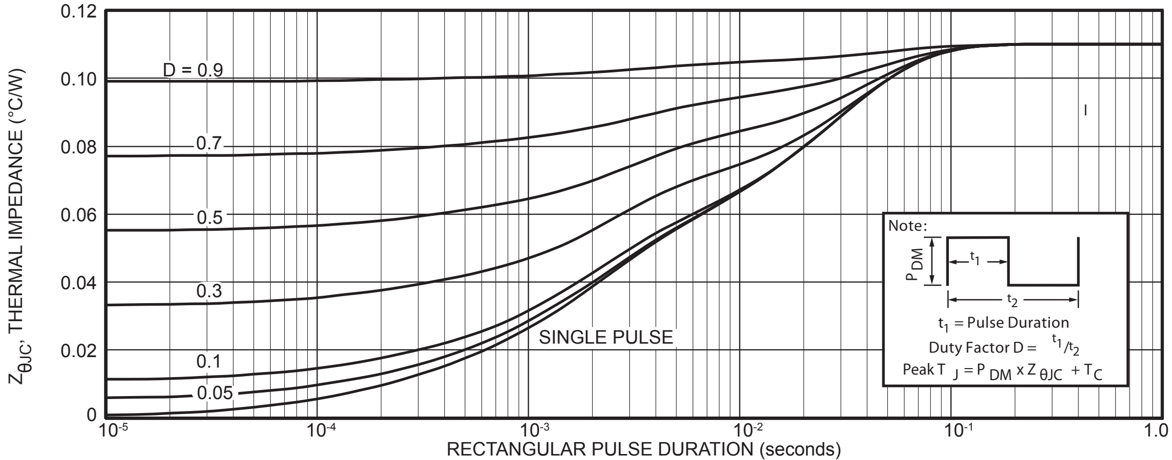
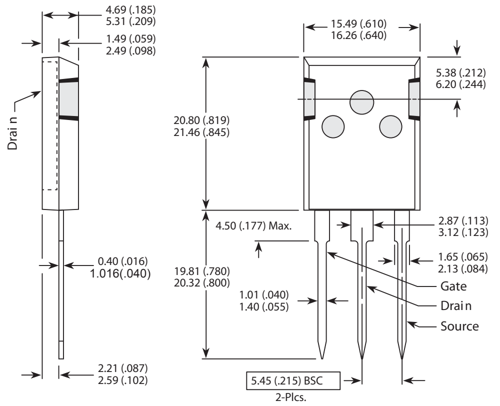


Figure 11. Maximum Effective Transient Thermal Impedance Junction-to-Case vs Pulse Duration

T-MAX™ (B2) Package Outline

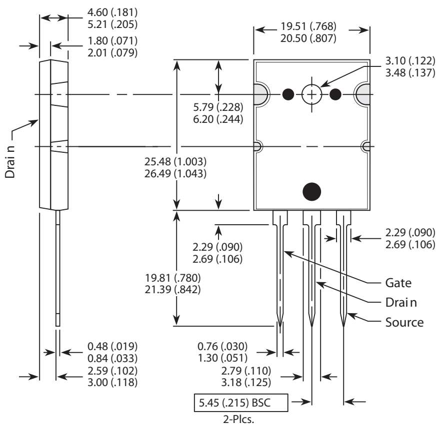
TO-264 (L) Package Outline

ⓔ3 100% Sn Plated



These dimensions are equal to the TO-247 without the mounting hole.

Dimensions in Millimeters (Inches)



Dimensions in Millimeters (Inches)