

P-Channel Enhancement Mode MOSFET

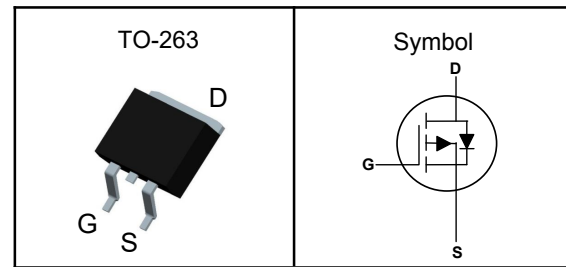
Features

- Advanced trench cell design
- Low Thermal Resistance
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

Applications

- Motor drivers
- DC - DC Converter

Pin Description



V_{DSS}	-100	V
$R_{DS(ON)-Typ}$	15	m Ω
I_D	-50	A

Absolute Maximum Ratings ($T_J=25^{\circ}C$, Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	-100	V	
V_{GSS}	Gate-Source Voltage	± 20	V	
T_J	Maximum Junction Temperature	-55 to 175	$^{\circ}C$	
T_{STG}	Storage Temperature Range	-55 to 175	$^{\circ}C$	
$I_{DM}^{①}$	Pulse Drain Current Tested	-40	A	
I_D	Continuous Drain Current	$T_c=25^{\circ}C$	-50	A
P_D	Maximum Power Dissipation	$T_c=25^{\circ}C$	136	W
$I_{AS}^{②}$	Avalanche Current, Single pulse	$L=0.1mH$	-45	A
$E_{AS}^{②}$	Avalanche Energy, Single pulse	$L=0.1mH$	101	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	18	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	1.1	$^{\circ}C/W$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature $150^{\circ}C$.

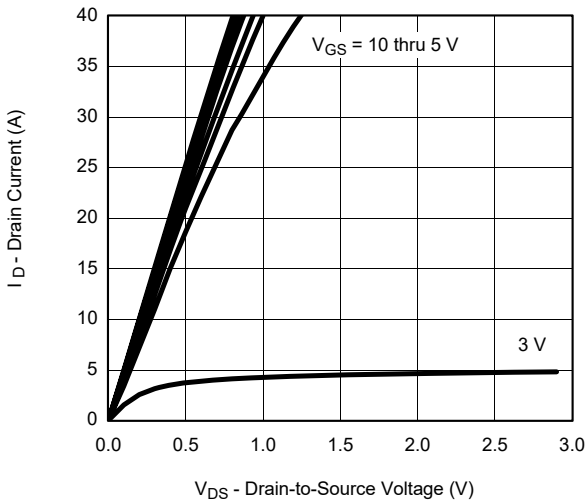
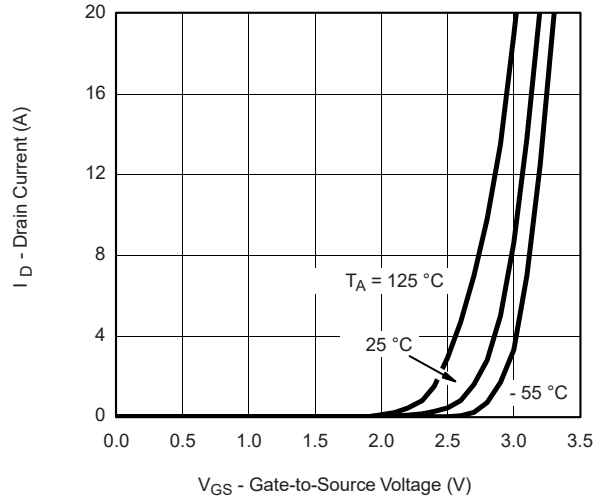
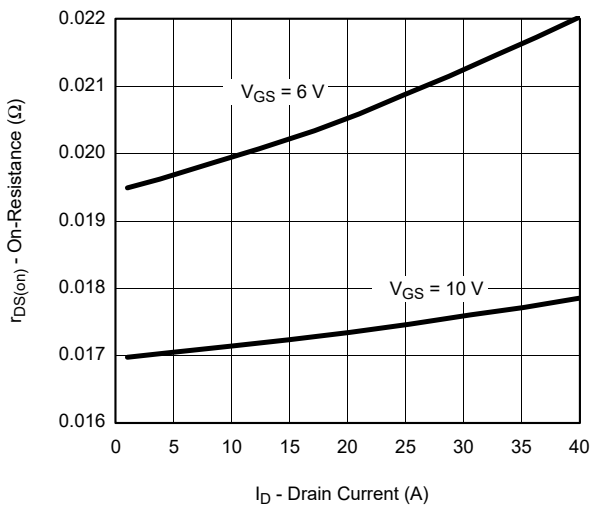
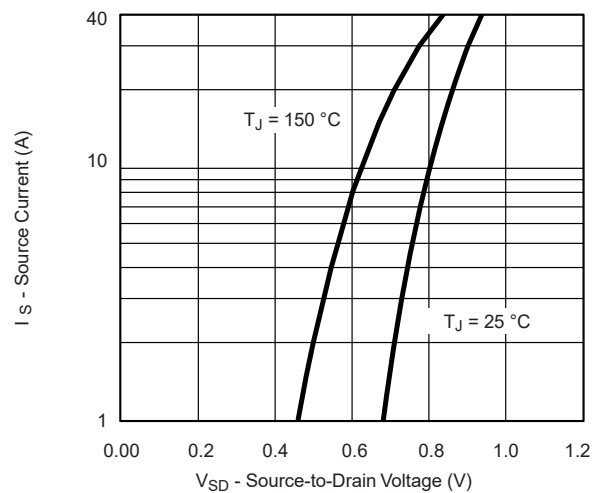
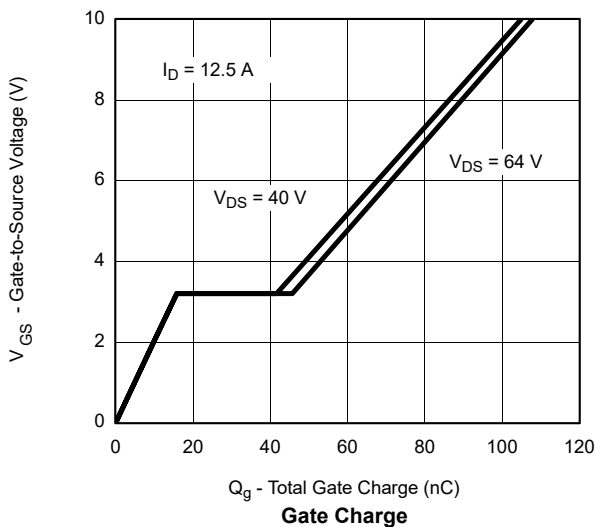
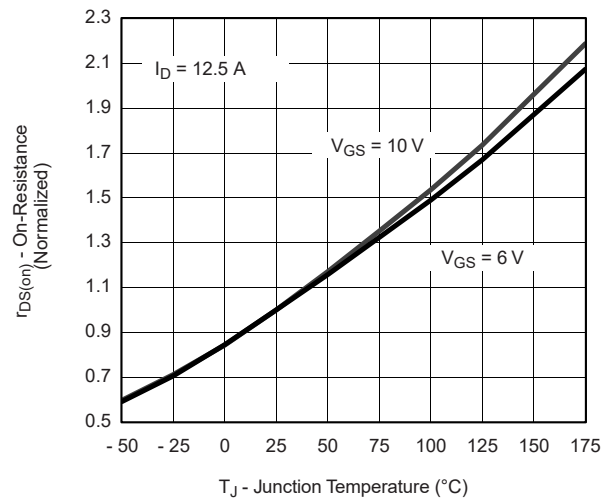
Note ③ : Surface Mounted on $1in^2$ FR-4 board with 1oz.

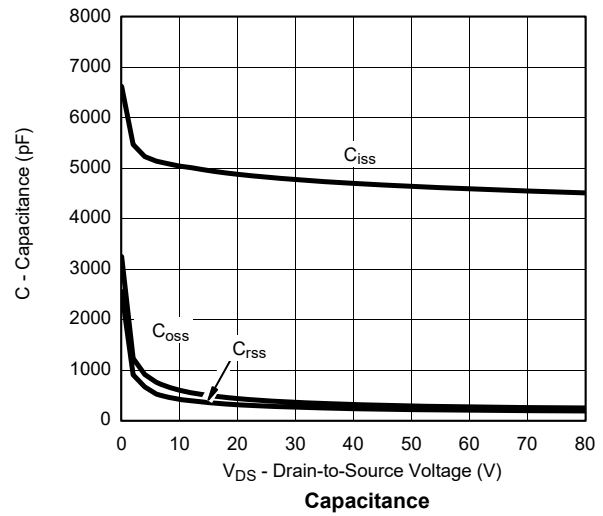
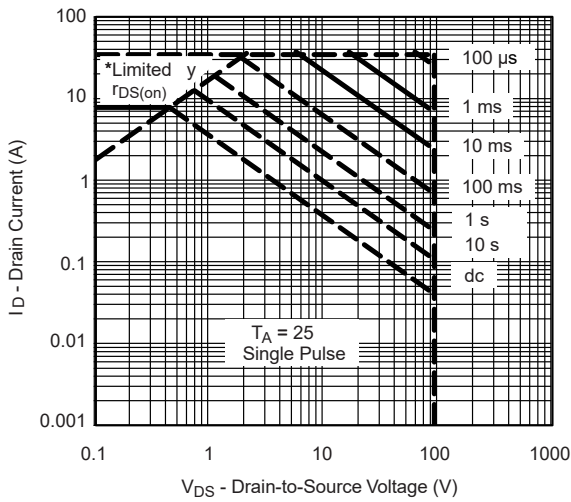
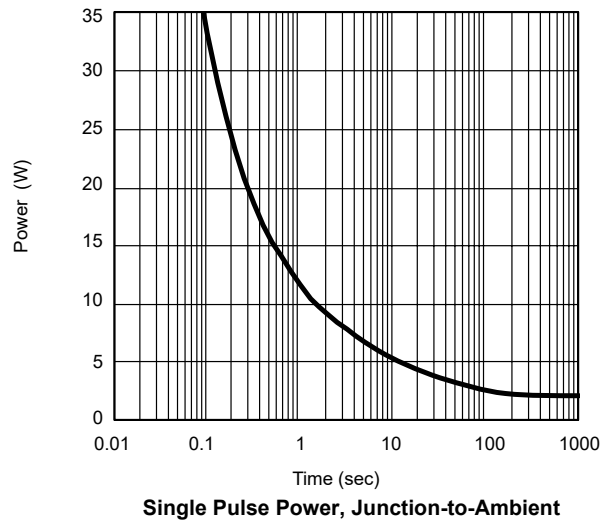
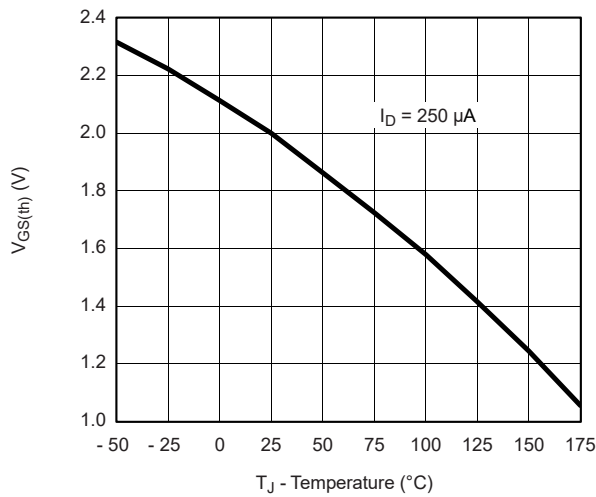
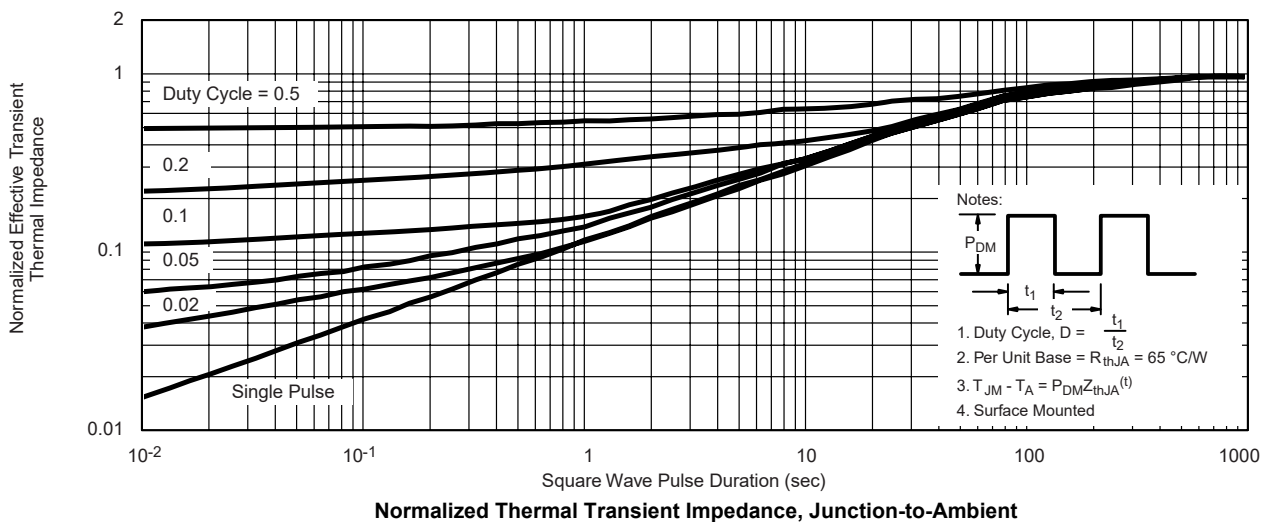
**P-Channel Enhancement Mode MOSFET****Electrical Characteristics** ($T_J=25^\circ\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	---	-3.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_D=-12.5A$	---	15	21	m Ω
		$V_{GS}=-4.5V, I_D=-10.5A$	---	21	30	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-50V, \text{Freq.}=1\text{MHz}$	---	4700	---	pF
C_{oss}	Output Capacitance		---	320	---	
C_{rss}	Reverse Transfer Capacitance		---	235	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V, V_{DD}=-50V, I_D=-10.5A, R_G=1\Omega$	---	45	---	nS
T_r	Turn-on Rise Time		---	220	---	
$T_{d(off)}$	Turn-off Delay Time		---	95	---	
T_f	Turn-off Fall Time		---	110	---	
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DD}=-50V, I_D=-12.5A$	---	105	---	nC
Q_{gs}	Gate-Source Charge		---	16	---	
Q_{gd}	Gate-Drain Charge		---	26	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_S=-10.5A, V_{GS}=0V$	---	---	-1.2	V

Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

Note ⑤: Guaranteed by design, not subject to production testing.

P-Channel Enhancement Mode MOSFET
Typical Characteristics

Output Characteristics

Transfer Characteristics

On-Resistance vs. Drain Current and Gate Voltage

Source-Drain Diode Forward Voltage

Gate Charge

On-Resistance vs. Junction Temperature

P-Channel Enhancement Mode MOSFET

Safe Operating Area, Junction-to-Ambient

Threshold Voltage
Single Pulse Power, Junction-to-Ambient


P-Channel Enhancement Mode MOSFET
TO-263 Package Outline Data
