

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	60	V
Gate-Source Voltage			V_{GSS}	± 12	V
Continuous Drain Current (Note 7)	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	I_D	630 500	mA
Maximum Continuous Body Diode Forward Current (Note 7)			I_S	0.5	A
Single Pulse Drain-to-Source Avalanche Energy (For Relay's Coils/Inductive Loads of 80Ω or Higher) (T_J Initial = $+85^\circ\text{C}$)			E_Z	200	mJ
Peak Power Dissipation, Drain-to-Source (Non repetitive current square pulse 1.0ms duration) (T_J Initial = $+85^\circ\text{C}$)			PPK	20	W
Load Dump Pulse, Drain-to-Source, $R_{\text{SOURCE}} = 0.5\Omega$, $t = 300\text{ms}$ (For Relay's Coils/Inductive Loads of 80Ω or Higher) (T_J Initial = $+85^\circ\text{C}$)			ELD1	60	V
Inductive Switching Transient 1, Drain-to-Source (Waveform: $R_{\text{SOURCE}} = 10\Omega$, $t = 2.0\text{ms}$) (For Relay's Coils/Inductive Loads of 80Ω or Higher) (T_J Initial = $+85^\circ\text{C}$)			ELD2	100	V
Inductive Switching Transient 2, Drain-to-Source (Waveform: $R_{\text{SOURCE}} = 4.0\Omega$, $t = 50\mu\text{s}$) (For Relay's Coils/Inductive Loads of 80Ω or Higher) (T_J Initial = $+85^\circ\text{C}$)			ELD3	300	V
Reverse Battery, 10 Minutes (Drain-to-Source) (For Relay's Coils/Inductive Loads of 80Ω or more)			Rev-Bat	-14	V
Dual Voltage Jump Start, 10 Minutes (Drain-to-Source)			Dual-Volt	28	V
ESD Human Body Model (HBM)			ESD	4,000	V

Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 6)		P_D	820	mW
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	154	$^\circ\text{C}/\text{W}$
Total Power Dissipation (Note 7)		P_D	1,090	mW
Thermal Resistance, Junction to Ambient (Note 7)	Steady State	$R_{\theta JA}$	116	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 6. Device mounted on FR-4 PCB, with minimum recommended pad layout.

7. Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. copper, single sided.

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV_{DSS}	60	—	—	V	$\text{V}_{\text{GS}} = 0\text{V}$, $\text{I}_D = 10\text{mA}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	50 0.5	μA	$\text{V}_{\text{DS}} = 60\text{V}$, $\text{V}_{\text{GS}} = 0\text{V}$ $\text{V}_{\text{DS}} = 12\text{V}$, $\text{V}_{\text{GS}} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 90 ± 60	μA	$\text{V}_{\text{GS}} = \pm 5\text{V}$, $\text{V}_{\text{DS}} = 0\text{V}$ $\text{V}_{\text{GS}} = \pm 3\text{V}$, $\text{V}_{\text{DS}} = 0\text{V}$
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	$\text{V}_{\text{GS}(\text{TH})}$	1.3	—	2.0	V	$\text{V}_{\text{DS}} = \text{V}_{\text{GS}}$, $\text{I}_D = 1\text{mA}$
Static Drain-Source On-Resistance	$\text{R}_{\text{DS}(\text{ON})}$	—	1.1 1.4	1.8 2.4	Ω	$\text{V}_{\text{GS}} = 5\text{V}$, $\text{I}_D = 0.15\text{A}$ $\text{V}_{\text{GS}} = 3\text{V}$, $\text{I}_D = 0.15\text{A}$
Forward Transfer Admittance	$ \text{Y}_{\text{fs}} $	80	—	—	ms	$\text{V}_{\text{DS}} = 12\text{V}$, $\text{I}_D = 0.15\text{A}$
Diode Forward Voltage	V_{SD}	—	—	1.2	V	$\text{V}_{\text{GS}} = 0\text{V}$, $\text{I}_s = 0.15\text{A}$
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C_{iss}	—	12.9	—	pF	$\text{V}_{\text{DS}} = 12\text{V}$, $\text{V}_{\text{GS}} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	17	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	0.84	—	pF	
Total Gate Charge	Q_{g}	—	0.74	—	nC	
Gate-Source Charge	Q_{gs}	—	0.19	—	nC	$\text{V}_{\text{GS}} = 5\text{V}$, $\text{V}_{\text{DS}} = 12\text{V}$, $\text{I}_D = 150\text{mA}$
Gate-Drain Charge	Q_{gd}	—	0.16	—	nC	
Turn-On Delay Time	$\text{t}_{\text{D}(\text{ON})}$	—	131	—	ns	
Turn-On Rise Time	t_{R}	—	301	—	ns	
Turn-Off Delay Time	$\text{t}_{\text{D}(\text{OFF})}$	—	582	—	ns	$\text{V}_{\text{DD}} = 12\text{V}$, $\text{V}_{\text{GS}} = 5\text{V}$
Turn-Off Fall Time	t_{F}	—	440	—	ns	

Notes: 8. Short duration pulse test used to minimize self-heating effect.

9. Guaranteed by design. Not subject to product testing.

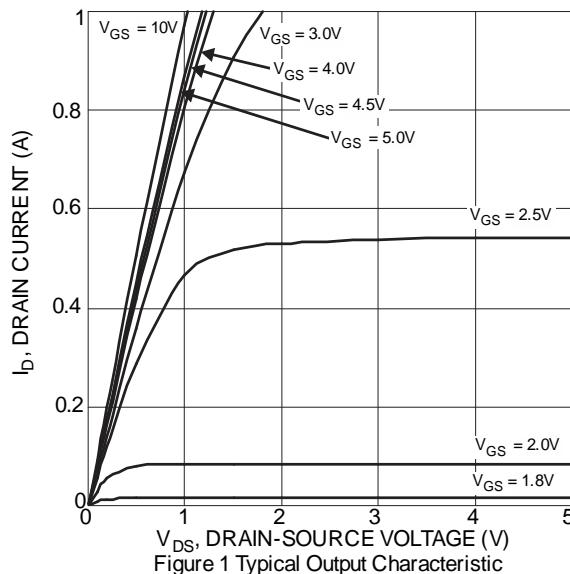


Figure 1 Typical Output Characteristic

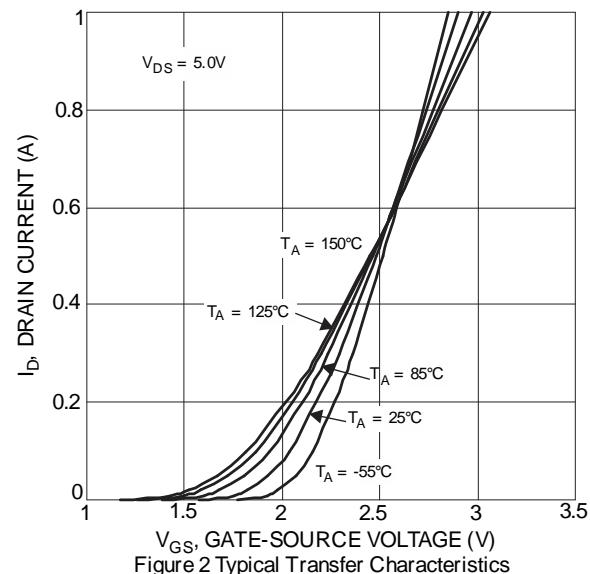
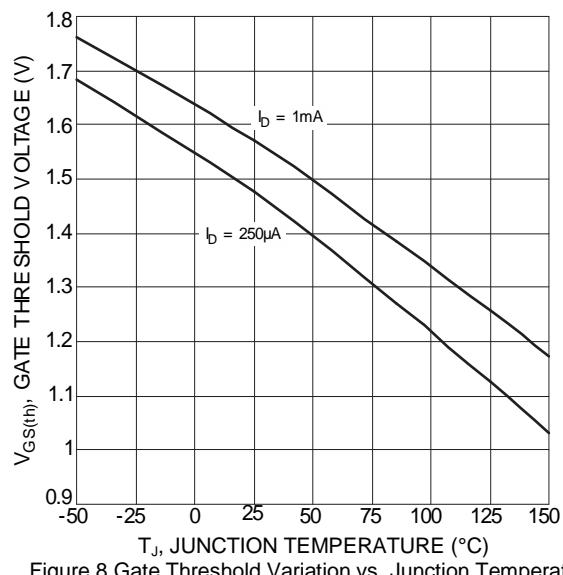
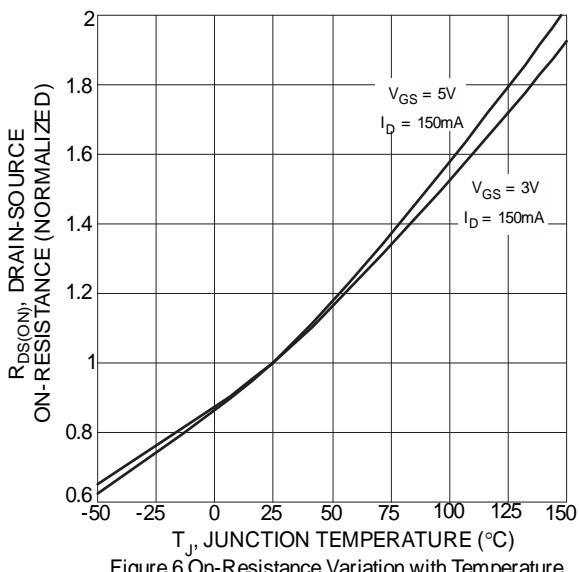
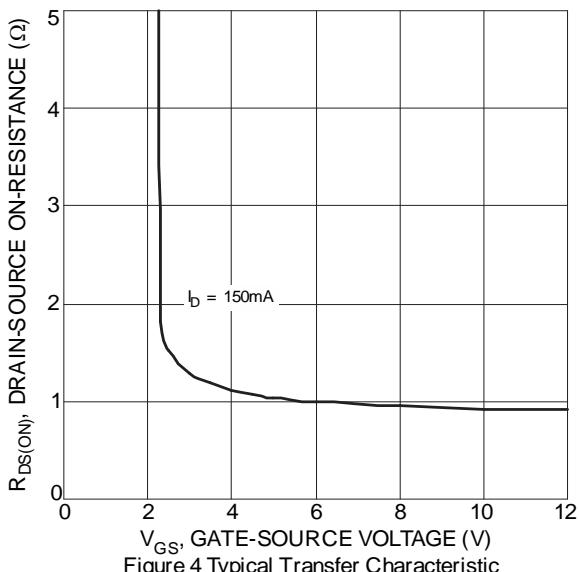
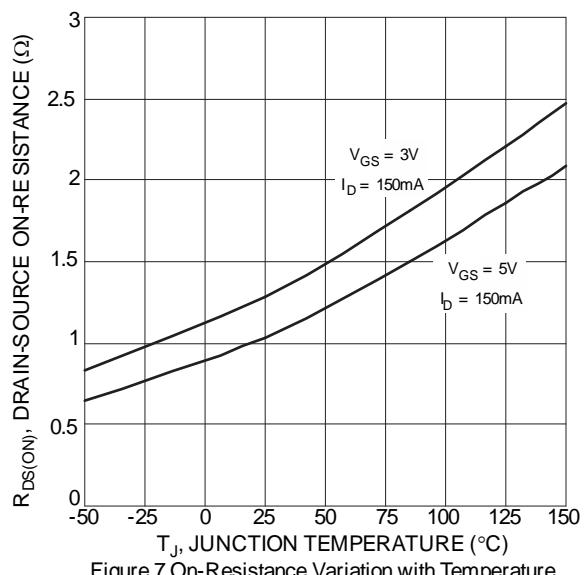
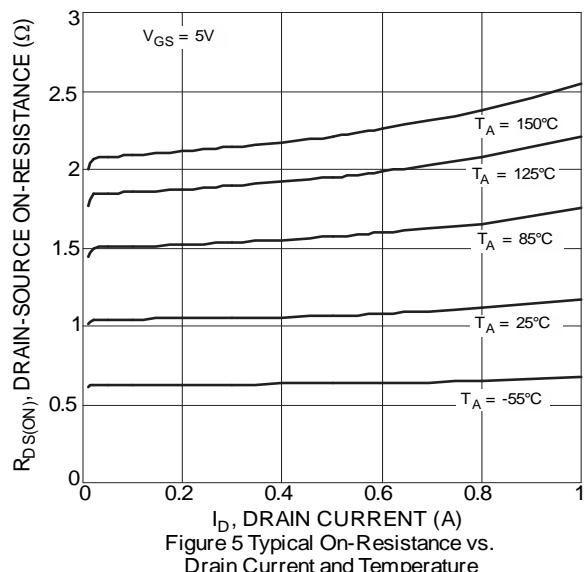
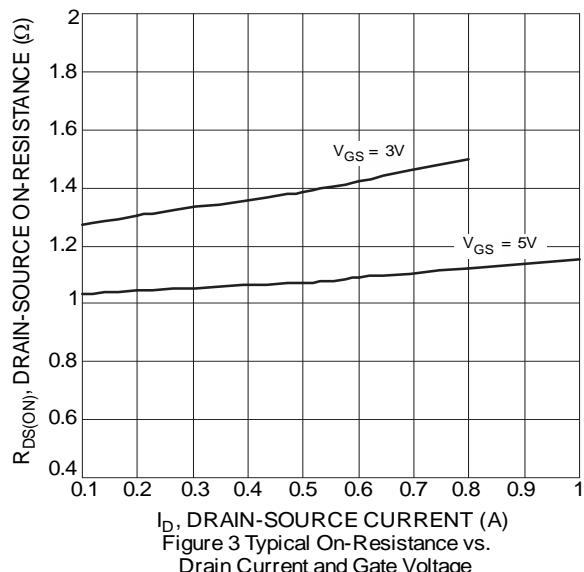
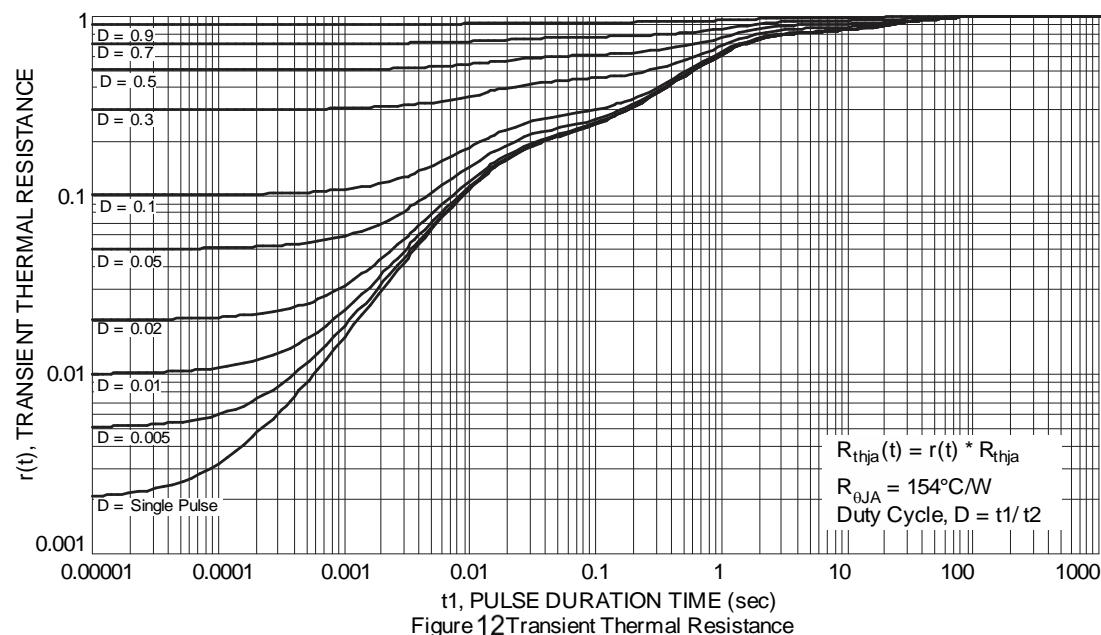
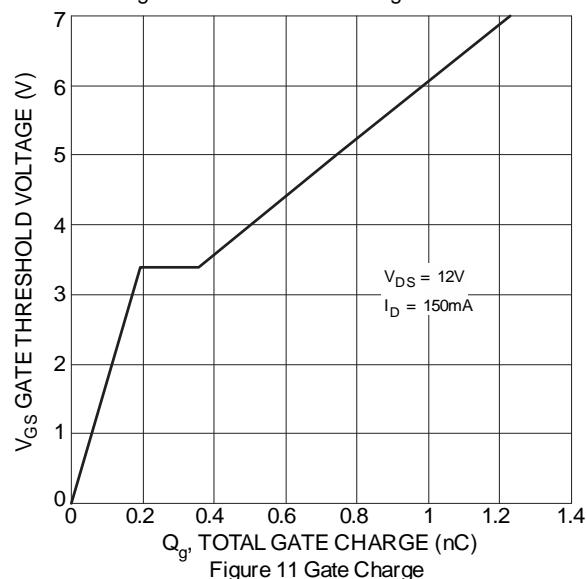
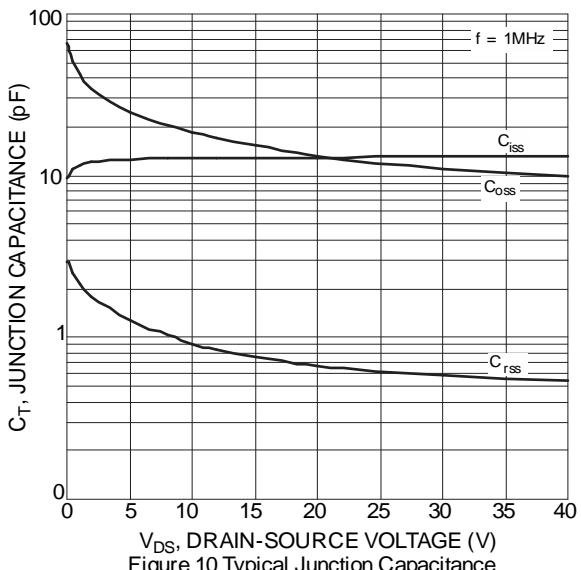
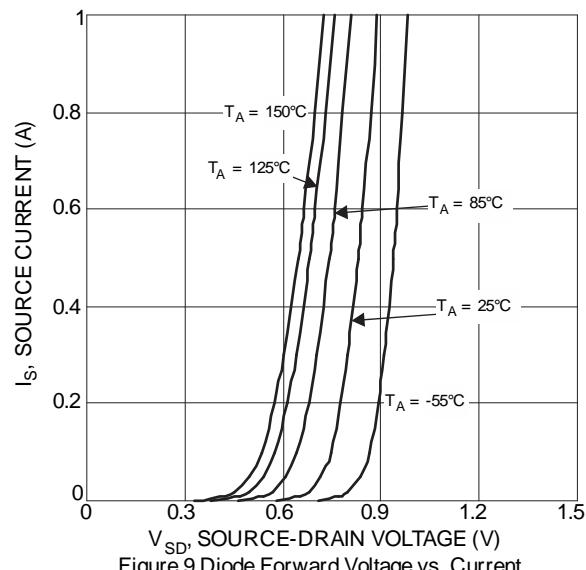


Figure 2 Typical Transfer Characteristics

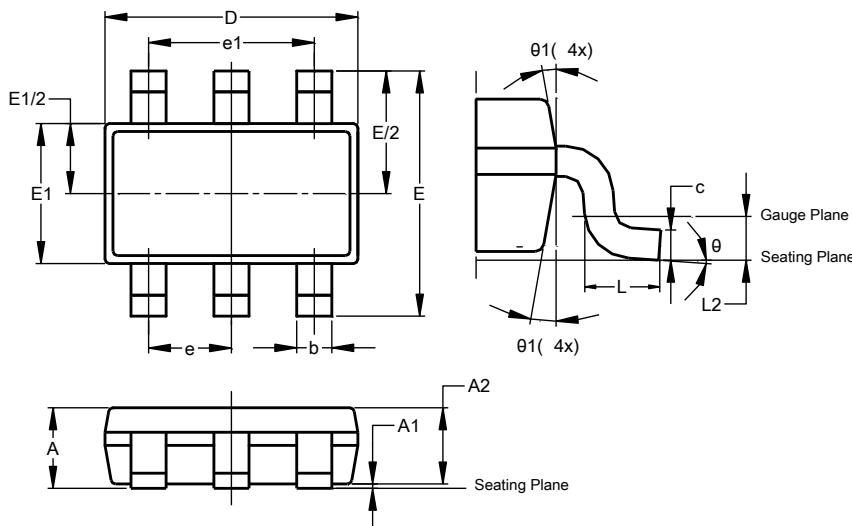




Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TSOT26



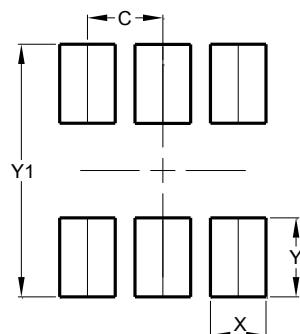
TSOT26			
Dim	Min	Max	Typ
A	—	1.00	—
A1	0.010	0.100	—
A2	0.840	0.900	—
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	—
c	0.120	0.200	—
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	—
L2	0.250 BSC		
θ	0°	8°	4°
θ1	4°	12°	—

All Dimensions in mm

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TSOT26



Dimensions	Value (in mm)
C	0.950
X	0.700
Y	1.000
Y1	3.199

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