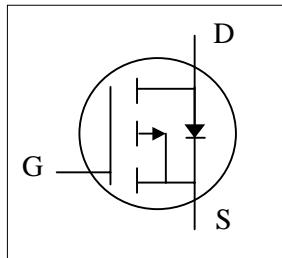
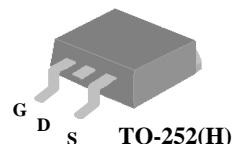




- ▼ Low On-resistance
- ▼ Simple Drive Requirement
- ▼ Fast Switching Characteristic
- ▼ Halogen Free & RoHS Compliant



BV_{DSS}	-60V
$R_{DS(ON)}$	25mΩ
I_D	-45A



Description

Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-252 package is widely preferred for commercial-industrial surface mount applications and using infrared reflow technique and suited for high current application due to the low connection resistance.

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	+20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	-45	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	-28.7	A
I_{DM}	Pulsed Drain Current ¹	-160	A
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	89.3	W
$P_D @ T_A = 25^\circ C$	Total Power Dissipation ³	2	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Units
R_{thj-c}	Maximum Thermal Resistance, Junction-case	1.4	°C/W
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient (PCB mount) ³	62.5	°C/W



Electrical Characteristics@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=-250\mu\text{A}$	-60	-	-	V
$R_{\text{DS(ON)}}$	Static Drain-Source On-Resistance ²	$V_{\text{GS}}=-10\text{V}, I_{\text{D}}=-20\text{A}$	-	-	25	$\text{m}\Omega$
		$V_{\text{GS}}=-4.5\text{V}, I_{\text{D}}=-15\text{A}$	-	-	30	$\text{m}\Omega$
$V_{\text{GS(th)}}$	Gate Threshold Voltage	$V_{\text{DS}}=V_{\text{GS}}, I_{\text{D}}=-250\mu\text{A}$	-1	-	-3	V
g_{fs}	Forward Transconductance	$V_{\text{DS}}=-10\text{V}, I_{\text{D}}=-20\text{A}$	-	36	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{\text{DS}}=-48\text{V}, V_{\text{GS}}=0\text{V}$	-	-	-25	μA
I_{GSS}	Gate-Source Leakage	$V_{\text{GS}}=\pm20\text{V}, V_{\text{DS}}=0\text{V}$	-	-	±100	nA
Q_{g}	Total Gate Charge	$I_{\text{D}}=-20\text{A}$	-	45	72	nC
Q_{gs}	Gate-Source Charge	$V_{\text{DS}}=-48\text{V}$	-	7.5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{\text{GS}}=-4.5\text{V}$	-	26	-	nC
$t_{\text{d(on)}}$	Turn-on Delay Time	$V_{\text{DS}}=-30\text{V}$	-	12	-	ns
t_{r}	Rise Time	$I_{\text{D}}=-20\text{A}$	-	38	-	ns
$t_{\text{d(off)}}$	Turn-off Delay Time	$R_{\text{G}}=3.3\Omega$	-	70	-	ns
t_{f}	Fall Time	$V_{\text{GS}}=-10\text{V}$	-	94	-	ns
C_{iss}	Input Capacitance	$V_{\text{GS}}=0\text{V}$	-	3600	5760	pF
C_{oss}	Output Capacitance	$V_{\text{DS}}=-25\text{V}$	-	375	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	270	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_{\text{S}}=-20\text{A}, V_{\text{GS}}=0\text{V}$	-	-	-1.3	V
t_{rr}	Reverse Recovery Time	$I_{\text{S}}=-20\text{A}, V_{\text{GS}}=0\text{V},$ $dI/dt=-100\text{A}/\mu\text{s}$	-	43	-	ns
			-	63	-	nC

Notes:

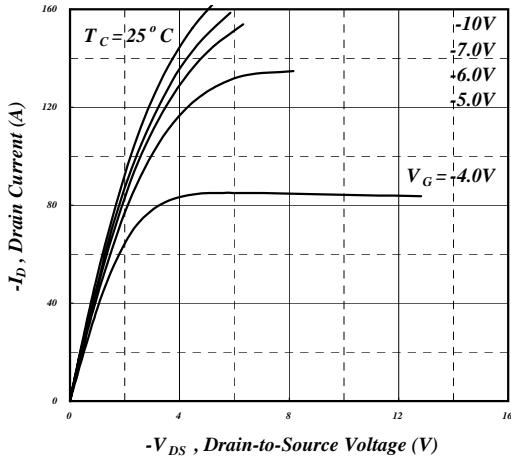
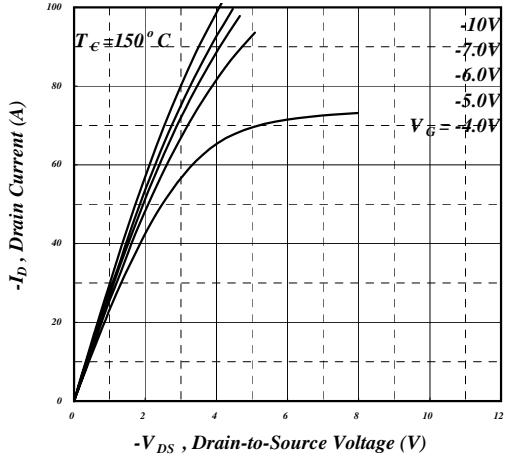
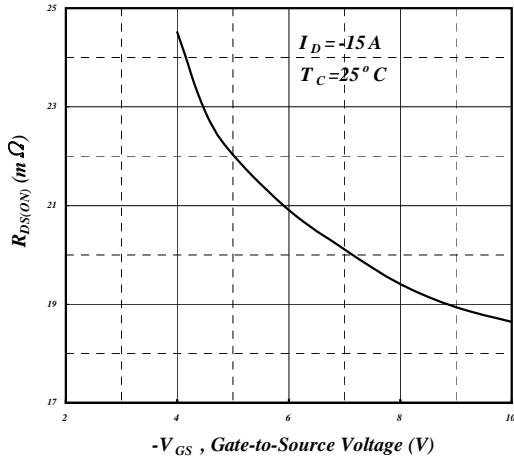
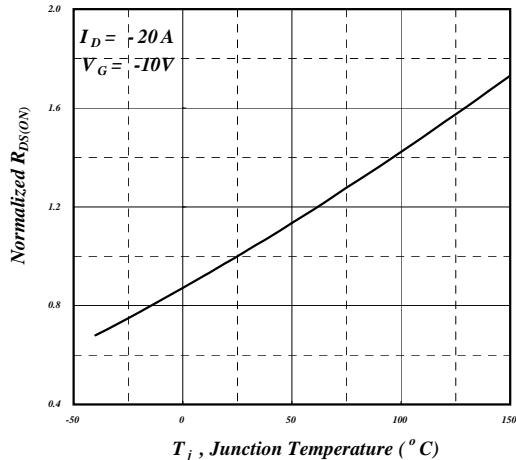
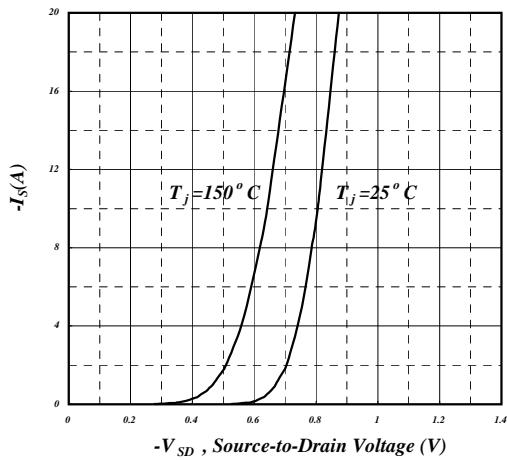
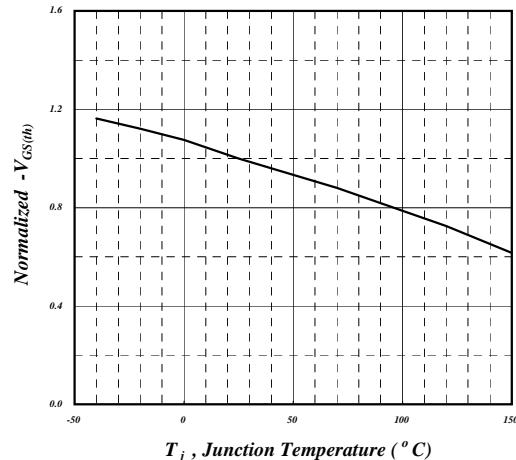
- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in2 copper pad of FR4 board

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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Fig 1. Typical Output Characteristics

Fig 2. Typical Output Characteristics

Fig 3. On-Resistance v.s. Gate Voltage

Fig 4. Normalized On-Resistance v.s. Junction Temperature

Fig 5. Forward Characteristic of Reverse Diode

Fig 6. Gate Threshold Voltage v.s. Junction Temperature

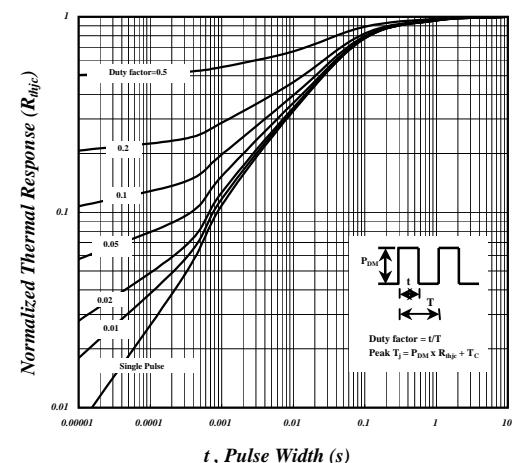
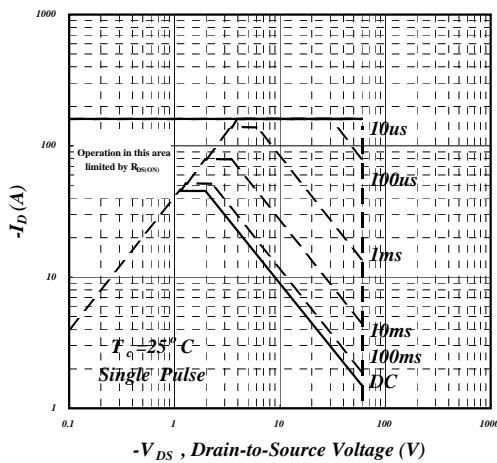
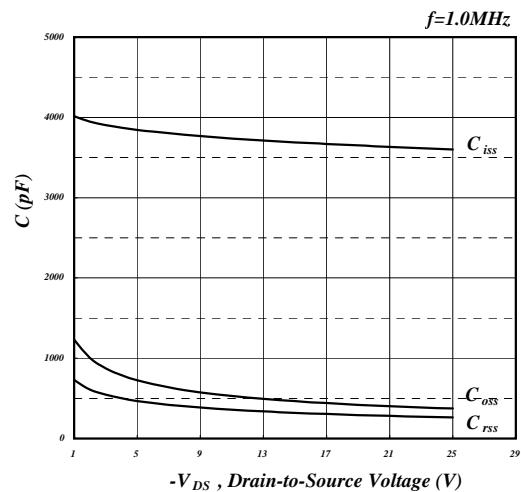
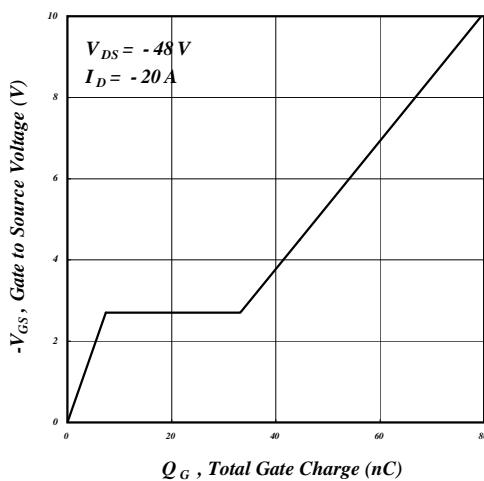


Fig 11. Switching Time Waveform

